AGENDA
THE UNIVERSITY OF WEST FLORIDA
BOARD OF TRUSTEES
Academic Affairs Committee Meeting
May 24, 2018
University of West Florida Conference Center, Bldg. 22
11000 University Parkway, Pensacola, FL 32514

Call to Order/Roll Call. .................................................. Adrianne Collins, Chair

Greetings ................................................................. Adrianne Collins

Action Items:
1. Approval of Tenure
2. Approval of Tenure as a Condition of Employment
3. Approval of Request to Offer New Degree Program Effective Fall 2019

Information Items:
1. Strategic Plan to Improve the Four-Year Graduation Rate

Other Committee Business:

Adjournment
**Issue/Agenda Recommendation:** Tenure

**Proposed Action:** Approve

**Background Information:**

The University of West Florida Board of Trustees tenure approval procedure contemplates that the Board of Trustees award tenure based on the President’s recommendation. The University’s current collective bargaining agreement with the faculty also requires that tenure be awarded by the Board following the specified process.

The procedure reads as follows:

**BOT Tenure Approval Process**

- The UWF BOT considers all nominations for tenure at its (June) meeting. Tenure nominations as a condition of employment will be considered as needed.

- The University President submits to the BOT a list of faculty nominated for tenure for approval by the BOT. The President’s transmittal certifies that each nominee has met the requirements necessary to be granted tenure and will continue to contribute to the University. Any request for tenure as a condition of employment also includes a statement justifying the special circumstances including a brief summary of the nominee’s academic credentials.

Fourteen individuals were nominated for tenure having fulfilled all necessary requirements. These faculty were nominated for approval in accordance with the requirements of the tenure approval procedure. This recommendation constitutes the Presidents certification concerning the nominee in accordance therewith.

The faculty being recommended for Tenure are as follows:
<table>
<thead>
<tr>
<th>College of Arts, Social Sciences and Humanities</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gregory Cook, Assistant Professor</td>
<td>Anthropology</td>
</tr>
<tr>
<td>2. Kristina Killgrove, Assistant Professor</td>
<td>Anthropology</td>
</tr>
<tr>
<td>3. Matthew Pursell, Assistant Professor</td>
<td>History</td>
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</tbody>
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<table>
<thead>
<tr>
<th>College of Business</th>
<th>Department</th>
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<tbody>
<tr>
<td>4. Alison Green, Assistant Professor</td>
<td>Global Hospitality and Tourism Management</td>
</tr>
<tr>
<td>5. Lane Lambert, Assistant Professor</td>
<td>Accounting and Finance</td>
</tr>
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<thead>
<tr>
<th>College of Education and Professional Studies</th>
<th>Department</th>
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<tr>
<td>6. Daniel Durkin, Assistant Professor</td>
<td>Social Work</td>
</tr>
<tr>
<td>7. Holly Ellis, Assistant Professor</td>
<td>Instructional, Workforce &amp; Applied Technology</td>
</tr>
<tr>
<td>8. Sara Evans, Assistant Professor</td>
<td>Criminology and Criminal Justice</td>
</tr>
<tr>
<td>9. Aneurin Grant, Assistant Professor</td>
<td>Instructional, Workforce &amp; Applied Technology</td>
</tr>
<tr>
<td>10. Julie Gray, Assistant Professor</td>
<td>Teacher Education and Educational Leadership</td>
</tr>
<tr>
<td>11. Charles Penrod, Assistant Professor</td>
<td>Legal Studies, Public Administration, and Sport Management</td>
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<tr>
<th>Hal Marcus College of Science and Engineering</th>
<th>Department</th>
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<tr>
<td>12. Peter Cavnar, Assistant Professor</td>
<td>Biology</td>
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<tr>
<th>Usha Kundu, MD College of Health</th>
<th>Department</th>
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<tbody>
<tr>
<td>13. Youngil Lee, Assistant Professor</td>
<td>Exercise Science and Community Health</td>
</tr>
<tr>
<td>14. Brandy Strahan, Assistant Professor</td>
<td>School of Nursing</td>
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</tbody>
</table>

**Implementation Plan:** Tenure grant to be effective August 8, 2018.

**Fiscal Implications:** None

**Supporting documents:**

2017-18 Tenure and Promotion Criteria
http://pages.uwf.edu/aadocs/bot/2017-18_Tenure_Promotion_Criteria.pdf

**Prepared by:** George Ellenberg, Provost and Senior Vice President
474-2035, gellenberg@uwf.edu

**Presented by:** George Ellenberg, Provost and Senior Vice President
Division of Academic Affairs

Policies and Procedures for:

*Tenure*

*Promotion*

*Annual Evaluation*

*Sustained Performance Evaluation*

2017-2018

Part I: Framework for Decisions
Part II: Administrative Guidelines
ANNUAL EVALUATION, TENURE, AND PROMOTION POLICY

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C. Evaluation Form for Department Colleague Review for Nominees Being Considered for Tenure

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PART I. FRAMEWORK FOR DECISIONS

A. DEFINITION OF TERMS

1. “Regional Comprehensive University”

Henderson (2007) elaborated the following unique features of the regional comprehensive university.1 Such institutions

- democratize education, making a college education broadly available to students with diverse preparation and motivation;
- focus specific attention on meeting the workforce needs of the region;
- emphasize the importance of effective teaching over research productivity;
- range from medium to large in size;
- concentrate on undergraduate education but offer selected graduate courses at the master’s level and a limited number of doctorates;
- are primarily supported through state funding and tuition.

The term “comprehensive” does not imply that the university will offer every conceivable university program, but instead connotes that the university is multi-purpose and selective in its goals. As such, faculty roles can be diverse in the regional comprehensive university, including those entirely committed to teaching and others whose primary focus is research. However, the majority of faculty will strive to balance commitments across teaching, scholarly and creative projects, and service in accordance with their departments’ mission.

2. Compliance Levels

When describing procedures and requirements, this policy document uses the verbs must, should, and may. The meanings follow:

a. Must implies that the department must comply in all cases, without exception.

b. Should implies a presumptive requirement, and the department is expected to comply in all cases. However, when “should” is used, the department may, in certain limited circumstances, deviate from the requirement. Deviations should be the exception, not the rule, and should be justified by the department during the review process.

c. May indicates a polite suggestion that departments are encouraged to address, if appropriate.

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3. Criteria and Performance Indicators

a. “University tenure and promotion criteria” addresses expectations about aspects of performance for major personnel decisions that are common across departments and programs.

b. “Department tenure and promotion criteria” refers to the expectations departments develop for purposes of tenure and promotion decisions.

c. “Department annual evaluation performance indicators” describes how departments adapt university criteria to fit their disciplines. Performance indicators reflect activities that faculty must have actually accomplished so that personnel committees can fairly evaluate whether a candidate satisfies the university and department expectations. These indicators might also be viewed as outcome measures, as they capture the outcomes that are expected for achieving a given performance rating.

4. Categories of Performance

These adjectives are ordinal rankings of the department annual evaluation performance criteria: distinguished, excellent, good, fair, poor. Departments must use performance criteria that reflect the same ordinal scale and the same adjectives to depict that scale.

**Distinguished** performance clearly exceeds department expectations for excellence.

**Excellent** performance is defined as meeting department expectations; no major areas of weakness exist.

**Good** performance indicates moderate progress in a given area but one or more weaknesses render the performance not quite to the expectations of excellence in the department.

**Fair** performance suggests minor progress in an evaluation area because one or more major weaknesses exist in performance. Although there may be one or more strengths as well, the performance clearly is not consistent with the department’s expectations for excellence. Performance at this level warrants remediation planning.

**Poor** performance is characterized as having substantial weaknesses that jeopardize professional progress as a UWF faculty member. Performance at this level requires remediation activity. In extreme cases, out-counseling may be the most appropriate course of action to assist the faculty to find an institution that will be a better match for the faculty member’s abilities, values, and/or work ethics.
B. TENURE AND PROMOTION CRITERIA

1. University Criteria for Tenure and Promotion

This section describes the university criteria for promotion and tenure for regular, full-time, tenure earning faculty.

Reflecting the mission of UWF as a regional comprehensive university, the university criteria emphasize teaching relative to scholarship/creative projects and service. A minimum of excellent teaching performance is required in all promotion and all tenure and promotion decisions. Favorable promotion decisions also require excellent performance in scholarship/creative projects and service for promotion decisions. However, faculty need not achieve excellent ratings in all three areas to achieve tenure. As shown in Table 1, good ratings in either service or scholarship/creative projects, combined with an excellent or distinguished rating in the other area and excellent or distinguished rating in teaching, should result in a favorable tenure decision. Except in unusual circumstances (e.g., egregious ethical violation), if faculty members meet the criteria described above, they should receive favorable decisions, but the meeting of such criteria cannot be construed as a guarantee of either tenure or promotion.

Table 1. University Criteria for Tenure and Promotion Decisions

<table>
<thead>
<tr>
<th>Personnel Decision</th>
<th>Teaching</th>
<th>Scholarship and Creative Projects</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenure</td>
<td>Excellent</td>
<td>At least Excellent in one category and at least Good in the other category</td>
<td></td>
</tr>
<tr>
<td>Promotion to associate</td>
<td>Excellent</td>
<td>Excellent</td>
<td>Excellent</td>
</tr>
<tr>
<td>Promotion to professor</td>
<td>Distinguished in at least one category and at least excellent in the other two categories</td>
<td></td>
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</table>

2. Department Criteria for Tenure and Promotion

Departments should strive to create tenure and promotion evaluation criteria that are as straightforward and transparent as possible. Department tenure and promotion criteria must clearly state how ordinal annual evaluation rankings (along with other factors the department determines are important) translate to the conclusions drawn in tenure and promotion decisions as shown in Table 1.
Candidates for tenure and promotion are responsible for assembling portfolios in which the weight of evidence documents sustained performance at the appropriate levels required for favorable decisions. Departments should provide guidance to faculty on what constitutes acceptable sustained performance. For example, departments may require a specific level of achievement for two or three years as evidence of readiness for promotion or tenure. Departments may also establish a target number of publications, creative works, or performances that must take place during the evaluation period.

C. DEPARTMENT ANNUAL EVALUATION PERFORMANCE INDICATORS

Departments should devise Annual Evaluation Performance Indicators that reflect the mission of the university and department. In each of the three areas (teaching, scholarship/creative projects, and service) departments must develop specific and measurable performance indicators that address the following:

- Quality criteria relevant to each activity;
- The frequency of activities and outcomes expected within review period, where relevant.

Performance indicators must clearly distinguish the differences between and among performance criteria (ordinal rankings: distinguished, excellent, good, fair, and poor). Appendix A provides university-level behavioral criteria for the five levels of performance that guide department discussions of their criteria.

1. Performance Indicators for Teaching

Because high-quality teaching is critical to the university’s regional comprehensive mission and vision, excellent performance is required for all tenure and promotion decisions. Teaching includes all teaching and learning activities in and out of the classroom that result in relevant, appropriate course learning outcomes, including the following:

- Face-to-face classroom teaching at Pensacola or branch campuses
- Online teaching
- Teaching in distance learning circumstances
- Research group and one-on-one supervision and mentoring
- Studio teaching in group or one-on-one formats
- Continuing education assignments
- Advising

Department performance indicators for teaching should include student evaluations of teaching. Conclusions drawn about teaching performance may also be influenced by the following indicators:
a. Teaching awards and other accomplishments related to teaching
b. Peer evaluations of teaching
c. Pedagogical and quality enhancement activities that improve learning (e.g., active learning and student engagement techniques)
d. Participation in professional development activities that improve teaching
e. Respect for students and their rights
f. Quality of teaching philosophy
g. Quality of syllabi and course goals
h. Effectiveness of assessment practices
i. Evidence of student support practices
j. Effectiveness of advising, mentoring, and student supervision practices
k. Quality of execution of special teaching assignments (e.g., honors, capstone, General Studies)
l. Quality of supervision of thesis, dissertations, or field experiences
m. Other relevant performance indicators specified by the department

2. Performance Indicators for Scholarship and Creative Projects

Departments must adopt performance indicators for scholarship and creative projects, taking into consideration issues of both quality and frequency of production, where relevant, that are consistent with the university’s mission, vision, and resources to support scholarly and creative work. Accordingly, departments should consider a broad range of activities that express their mission and vision. Moreover, departments should recognize that regional comprehensive universities have limited resources that may constrain scholarly expectations (e.g., relatively limited travel support diminishes the opportunity for international participation).

Scholarship and creative projects must be externally reviewed and publicly available. These projects include the following:

- Creation, production, exhibition, artistic performance, or publication of works by one or more individuals demonstrating originality in design or execution
- Discovery of new knowledge
- Development of new technologies, pedagogy, methods, materials, or uses
- Integration of knowledge leading to new understanding
- Application of knowledge to consequential problems

Departments should consider and address a wide range of venues for disseminating scholarly and creative projects, including the following:

- Peer-reviewed publications
- Editorially reviewed publications
• Convention and conference contributions
• Grant activity
• Electronic outlets
• Broad performance venues for the creative and performing arts
• Other performance indicators for service deemed acceptable to the department

Conclusions drawn about the quality of scholarly and creative projects may be influenced by the following performance indicators:

a. Recognition or awards earned
b. Scholarly or creative projects agenda or creative plan
c. Peer reviews or other evidence of quality
d. Adherence to ethical standards
e. Professional development activity (e.g., licensure, technology training, etc.)
f. External grants or other support to facilitate scholarship or creative activities
g. Time management skills
h. Skilled use of collaboration as demonstrated by the commitments proposed, accepted, and fulfilled (e.g., group projects, creative activities, and grants)
i. Other relevant performance indicators specified by the department

3. Performance Indicators for Service

Departments must adopt performance indicators for service, taking into consideration issues of both quality and frequency, which are consistent with the university’s mission and vision. Moreover, departments should recognize that service is relatively more important in a regional comprehensive university than what might be expected at a research-intensive university.

Service activities may include the following:
• Service to university or college or department
• Discipline-related service to the community
• Service as Department Chair or Program Director
• Unremunerated consultancies
• Community activities related to one’s discipline
• Advising student organizations
• Service to academic or professional organizations (e.g., editorial review boards, organization leadership; conference organizer)
• Travel time to and from remote campuses locations

Although there is no specific requirement about the balance of service activities that faculty should select, there is an expectation that the faculty member will function effectively as a department citizen, assisting in completing the work of the department’s programs.
Faculty will vary in their execution of a service plan. For example, service may reasonably emphasize activity on the campus at the expense of the other options where that plan works with the university and department missions. In such a case, greater depth of service would be expected.

As faculty progress in their service commitments, the general trend is to move from less involved participation (e.g., "sitting" on a committee and being reactive to emerging plans) through more intense investment (e.g., exercising leadership and solving service problems proactively).

At the outset of employment, service activities are likely to be the relatively lowest priority of the three categories. As such, department Chairs and Program Directors should advise new faculty about the necessity of service in a regional comprehensive university and how these activities can be incorporated strategically into their work assignments. Service expectations should be somewhat lighter for new faculty who are establishing themselves as teachers and scholars/artists, but new faculty should ultimately be encouraged to render high quality service in their selected activities. Departments should provide equitable access to service opportunities for all members and be reasonable in making service assignments that fit with other faculty responsibilities.

Community service is more valuable when it is related to a faculty member’s disciplinary background. For example, a biology professor serving as the director of a local church choir would not represent service contributions for the purpose of promotion and tenure evaluation. However, such service for a music professor probably would. Departments’ performance indicators may address how compensated service should be evaluated in the context of their discipline and department.

Conclusions drawn about quality of service may be influenced the following performance indicators:

a. A measure of the scope of service activities
b. Peer evaluation of contributions to the service mission
c. Quality of service leadership
d. Service agenda well suited to regional comprehensive university mission
e. Service contributions represent strategic decisions that balance demands from the discipline, department, campus, and community
f. Recognition for service inside or outside of the university or both
g. Synergy between faculty member’s area of expertise and service function
h. Other service activities defined by the department
PART II. ADMINISTRATIVE GUIDELINES

A. TENURE

1. Eligibility for Tenure

   a. Faculty beginning careers at UWF. Candidates for tenure must submit for tenure review no later than the fall of the 6th year of employment. Candidates for tenure with unusually strong performance records may submit for review no earlier than the fall of the 5th year.

   b. Faculty transferring to UWF. Faculty members may negotiate up to 2 years of credit toward tenure based on past performance. The initial appointment letter must clearly identify the number of years of credit toward tenure. When the Dean grants 2 years of credit toward tenure, regular consideration for tenure will transpire in the fall of the 4th year of employment. Early consideration for tenure, in cases where candidates demonstrate unusually strong performance, will initiate tenure review in the fall of the 3rd year. In cases for which service outside UWF produced credit toward tenure, a copy of the initial appointment letter documenting this credit must be included in the portfolio. Any subsequent changes to years of credit toward tenure also must be documented and included in the portfolio.

2. The Role of Chair’s Annual Evaluation in Tenure Review

   The Chair’s annual evaluations provide systematic feedback to the faculty member over the course of employment. The Chair shall evaluate each faculty member annually in writing, assess progress toward tenure and promotion, give the faculty member a copy of the written evaluation, and discuss the written evaluation with the faculty member. If the evaluation reflects deficiencies in the faculty member’s performance, the Chair shall make specific suggestions to give the faculty member an opportunity to improve performance, thereby enhancing the likelihood of successful tenure and/or promotion. The faculty member may submit a rebuttal to the annual evaluation that will become part of the official file.

   The Chair’s annual evaluations should carry some degree of weight in tenure and promotion decisions; however, this perspective represents just one component of the formal review process. At each level of review, the candidate’s accomplishments are subject to professional and peer scrutiny. Therefore, strong annual evaluations represent summative feedback about faculty performance but cannot be construed as a guarantee of either tenure or promotion.

3. The Department’s Role in Preparation of Tenure-Track Faculty
Departments must have a procedure devoted to mentoring new faculty. Departments have the responsibility for designing and maintaining a mentoring program that facilitates new faculty members’ professional growth and adaptation to the university.

It is also the responsibility of the department to conduct a review during the mid-point of the probationary period. The Dean must identify the approximate date of the mid-point review in the initial appointment letter. The Chair shall take responsibility for ensuring that the department completes the review, whether the Chair provides the evaluation or delegates the responsibility (e.g., mentoring committee). The procedure for the review shall be described in departmental by-laws.

The mid-point review is intended to provide formative feedback to optimize faculty success in the tenure decision. The review should corroborate success and encourage faculty who are making solid progress toward tenure, inform faculty who may need to improve in selected areas of performance, and warn faculty where lack of progress could jeopardize a favorable outcome. Faculty members may elect to include a copy of the mid-point review in the tenure portfolio; however, inclusion is not required.

All mid-point reviews should address the performance of annual assignments including teaching, scholarly and creative projects, and service occurring during the preceding tenure-earning years of employment. In addition, all reviews should assess overall performance and contributions critically in light of mid-point expectations. The mid-point review will not be as extensive as the formal tenure review that occurs toward the end of the probation period, but should be based on a set of documents, including a current vita; annual evaluations; student/peer evaluation of teaching; selected examples of teaching materials and scholarship; and a self-evaluation by the faculty member. The Dean will review the department’s written mid-point review and respond to the department and the faculty member in writing. Further use of these materials is at the discretion of the faculty member.

4. The Role of the Department in Tenure Evaluation

The Chair will request all tenured full-time faculty members to submit a formal evaluation on tenure for each eligible faculty member within the appropriate unit. (See Appendix C.) The evaluation form should be completed and signed by each faculty member and submitted to the Chair. Other full-time faculty (excluding visiting faculty) may provide the Chair with opinions of the candidate’s dossier. On a separate document, all tenured faculty in the department or unit shall vote regarding the acceptability of tenure for the candidate. The unsigned votes will be included in the tenure dossier in an envelope without disclosure of how individual faculty voted in the decision. (See Appendix D for the form on which to record the results of the secret ballot.)
B. PROMOTION

1. Eligibility for Promotion

The faculty member and the Chair shall confer about the readiness of the faculty member as a candidate for promotion. The process of submitting a dossier for consideration for promotion shall be initiated upon request of the faculty member or upon agreement between the faculty member and Chair. The Chair will forward the request to the Dean.

Eligibility for promotion involves both quality of performance and time served in existing rank. Candidates will typically be considered worthy of promotion when their annual evaluations demonstrate quality in performance consistent for three prior years with the expected level of performance for the rank to which the candidate aspires. Candidates will also have to achieve any specific targets for production of scholarly and creative projects that are identified in department by-laws, criteria or policies.

If candidates do not succeed in their bid for promotion, they should refrain from immediate resubmission unless the intervening changes show substantial improvements. Results of all prior unsuccessful reviews shall be required in subsequent promotion reviews.

a. Promotion to Professor. Candidates for Professor will typically complete at least 5 years of employment at the associate level, 3 of which should transpire at UWF. Candidates may submit for review after the completion of 4 years of employment at the associate level, at least 3 years of which have transpired at UWF, in exceptional cases where annual evaluations point to success in meeting performance expectations. A candidate being reviewed for promotion to Professor should demonstrate at least excellent ratings in all areas of review (teaching, scholarly and creative projects, and service) and at least 1 area should be rated as distinguished in the 3 years immediately preceding submission of the dossier. The distinguished rating can be in different areas over the course of the 3 years but a minimum of one distinguished rating each year must be reflected in the evaluation.

b. Promotion to Associate. Candidates for Associate Professor will typically complete 5 years of employment at the assistant professor level before submitting a dossier for review in the fall of the 6th year. Candidates may submit for review after the completion of 4 years of employment in exceptional cases where annual evaluations point to success in meeting performance expectations for the preceding 3-year period. A candidate being reviewed for promotion to Associate
Professor should be expected to have at least excellent ratings in all 3 categories of review for 3 years at UWF prior to submission of the dossier.

2. **The Role of the Chair’s Annual Evaluation in Promotion Decisions**

The Chair shall be responsible for keeping the faculty member informed about the Chair’s assessment of the faculty member’s accomplishments and progress toward promotion. Candidates and administrators should refer to relevant articles in the Collective Bargaining Agreement for guidance.

3. **The Role of the Department Members in Promotion Evaluation**

The Chair will request all full-time faculty (excluding visiting faculty) in the department or unit to submit an evaluation on promotion for the promotion candidate. (See Appendix B.) The evaluation form should be completed and signed by each faculty member and submitted to the Chair. Should a faculty member decline to submit an evaluation of a colleague, the faculty member should return the evaluation with a notation that the faculty member declined to complete an evaluation. The decision to decline the evaluation will be placed in the promotion file without attribution to the source of the decision. Promotion recommendations do not require a formal vote; however, eligible faculty members should provide input on this important decision.

In cases where there are fewer than three tenured faculty to assist in making the promotion evaluation decisions, the respective college council shall develop a procedure to provide an additional evaluation method. Chairs shall notify the college council at the start of the academic year when an alternative needs to be implemented.

C. **GENERAL PRINCIPLES AND PROCESSES FOR TENURE AND PROMOTION**

1. **Confidentiality.** All evaluators, including faculty, Chairs, Deans, and committee members as well as staff members who assist in the process shall keep all recommendations and committee deliberations in strict confidence.

2. **Securing colleague supporting materials.** Candidates will secure a total of 6 colleague evaluations for inclusion in their dossiers.

   a. **External evaluations.** In consultation with the candidate, the Chair must secure 3 evaluation letters for personnel decisions (tenure and/or promotion) from knowledgeable peers outside the university who have expertise in the candidate’s discipline. For these letters, peers should be in a position to make independent judgments. The evaluators should specify how long and in what capacity they have known the candidate and include an abbreviated curriculum vita. Prior to
the consideration of the faculty member’s candidacy, the candidate should review the contents of the relevant file and may attach a brief response to any materials therein.

b. **Internal letters of support.** Candidates must include 3 letters of support from knowledgeable peers within the university (outside the home department).

3. **Preparing the dossier.** Faculty members are encouraged to consult with the Chair as a mentor to facilitate the smoothest preparation process possible; however, ultimately the candidate shall be responsible for including all pertinent information in the dossier in the recommended order and meeting appropriate deadlines. The Chair shall assist the candidate with preparation of the dossier and shall make available to the candidate all necessary materials, information, and forms.

4. **Levels of Review.** Before the President makes a final decision on the status of the application, the candidate’s dossier will undergo sequential review by the following entities:
   - the department and Chair;
   - the College Faculty Personnel Committee (CFPC);
   - the Dean;
   - the University Personnel Committee (UFPC); and
   - the Provost.

Each review judgment should be regarded as independent and advisory.

A review by the UFPC will be required if there are any negative reviews from any prior reviewing bodies. Additionally, the Provost may request a UFPC review if he or she believes that further deliberation and input will facilitate the most defensible decision. Any candidate may also request a review by the UFPC.

A review by the UFPC will not be required under the following conditions:
   a) The departmental faculty render majority support or tie vote in favor of the candidate; \textit{and}
   b) The Chair agrees with the majority (or breaks the tie) in favor of the candidate; \textit{and}
   c) The CFPC agrees in favor of the candidate, with no negative opinions; \textit{and}
   d) The Dean agrees in favor of the candidate.

In summary, a candidate whose dossier produces no negative feedback through the Dean’s level of review should not expect to be reviewed by the UFPC unless extenuating circumstances prompt to the Provost to ask for additional assistance from the UFPC.
The President shall recommend to the University Board of Trustees on all tenure matters, taking into account the recommendations of all groups or individuals described in this statement. Promotion decisions do not go before the Board for confirmation, which means the President is the final authority in these decisions.

5. **Review Decisions.** All reviewers shall exercise independent judgment. Each decision, starting with the decision rendered by the Chair, must be accompanied by a rationale for the decision rendered. When a decision is unfavorable, the rationale should provide sufficient detail to enable the candidate to address the concerns in a rebuttal. The conclusions of the CFPC and UFPC committee must reveal the vote tally; however, the decision must not disclose how individual committee members voted in the decision.

6. **Department Procedures and/or Bylaws.** Departments shall ensure that relevant department procedures and/or bylaws are in accord with the principles outlined in this document.

7. **Promotion and Tenure Review Calendar.** The following represents the schedule by which the various levels of decisions will be rendered for promotion and tenure.

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>JUN 30</td>
<td>The Dean shall provide to each Chair a list of faculty members eligible to apply for tenure and promotion in the Chair’s department.</td>
</tr>
<tr>
<td>SEP 1</td>
<td>Deadline for those faculty members with credit towards tenure to withdraw all or a portion of such credit. (May only be withdrawn once)</td>
</tr>
<tr>
<td>SEP 8</td>
<td>Candidate provides curriculum vitae (CV) update and other materials as set out on page 19, Suggested Ordering of Materials in Promotion and Tenure Dossiers.</td>
</tr>
<tr>
<td>SEP 29</td>
<td>Chair requests peer evaluations and confers with candidate.</td>
</tr>
<tr>
<td>OCT 30</td>
<td>Chair adds his/her evaluation to the dossier and must assure that a copy of his/her evaluation is accessible by the candidate no later than this date.</td>
</tr>
<tr>
<td>NOV 6</td>
<td>Candidate adds rebuttal letter (if he/she chooses) to the dossier. Chair forwards dossier to the Dean.</td>
</tr>
<tr>
<td>NOV 7</td>
<td>Dean forwards the dossier to the College Faculty Personnel Committee (CFPC).</td>
</tr>
<tr>
<td>DEC 1</td>
<td>CFPC adds its recommendation and returns the dossier to Dean. CFPC must assure that a copy of the recommendation is accessible by the candidate no later than this date.</td>
</tr>
</tbody>
</table>
Candidate provides a rebuttal letter (if he/she chooses). The Dean includes the rebuttal in the dossier.

2018

JAN 5  Dean adds his/her recommendation to the dossier and must assure that a copy of the recommendation is accessible by the candidate no later than this date. Dean also informs the members of CFPC regarding his/her recommendation and sends a copy of recommendation to the candidate’s Chair.

JAN 12  Candidate provides a rebuttal letter (if he/she chooses). The Dean includes the rebuttal in the dossier.

JAN 16  Dean forwards complete dossier to Provost who forwards dossier to University Faculty Personnel Committee (UFPC), when necessary.

FEB 12  UFPC adds its recommendation and forwards complete dossier to Provost. UFPC sends a copy of the recommendation to the candidate, Chair, and Dean.

FEB 19  Candidate provides a rebuttal letter to Provost, if he/she chooses, to be included in dossier.

MAR 15  Deadline for withdrawal for tenure and/or promotion consideration.

MAR 19  Provost adds his/her recommendation and sends a copy to candidate, Chair, Dean, and members of the CFPC and UFPC.

MAR 26  Candidate provides a rebuttal letter (if he/she chooses). The Provost includes the rebuttal in the dossier.

MAR 27  President receives complete dossier.

APR 23  President informs the candidate of the promotion decision and/or tenure recommendation, in writing, with copies to Chair, Dean, Provost, and the Chairs of the CFPC and UFPC. Dossier returned to Deans' Office.

D. SPECIAL CONSIDERATIONS

1. Linkage of Tenure and Promotion

Many candidates will go up for promotion to associate and tenure at the same time; however, that linkage is not a university requirement. Reviewers should recommend tenure, but not promotion, only when they have confidence that the candidate is close to qualifying for promotion. Otherwise, departments may end up with the challenge of having made a career commitment to a faculty member who will be
unable to realize the full range of faculty demands during their careers at the university, perhaps having an adverse long-range impact on the quality or scope of what the department can accomplish.

2. Enhanced Department Requirements

Departments can exercise more stringent performance requirements than the university standards as described in Part I, as long as they are consistent with the Collective Bargaining Agreement. Such enhancements must be clearly identified in department bylaws as enhancements beyond university standards so reviewers who do not share the department’s disciplinary orientation can understand and support the department’s standards.

3. Changing Department Standards

When departments choose to change or enhance their standards, the UFPC must review these proposed changes. Changes in department standards must be consistent with the applicable provisions in the Collective Bargaining Agreement.

4. Early Review Considerations

Some candidates for tenure and/or promotion may be inclined to take advantage of the option to go up early for review for tenure or promotion. In general, candidates should only go up early when the history of work supports a favorable and easy decision at all levels of review. If the candidate is unsuccessful in an early bid for tenure and/or promotion, the results of the first review along with any recommendations made by the reviewing body will be included in any subsequent review.

5. Joint Appointment

If a faculty member is hired as a joint appointment, the Chairs of the respective departments will confer at the time of the appointment to determine which department will serve as the primary for administrative purposes. The Chair of the primary department shall be responsible for personnel decision processes, but is obliged to confer with the Chair of the secondary department before rendering judgment. The relevant departments shall confer regarding how the faculty member’s scholarly or creative agenda should relate to relevant evaluation criteria. If an existing faculty member’s status is changed to a joint appointment, the administrative responsibilities between the departments should be determined at the point the change in status transpires. In a joint appointment, the standard for scholarly production should be a hybrid of the two departments’ expectations; the faculty in a shared appointment should not be expected to meet separate production targets for both departments.
E. SUGGESTED ORDERING OF MATERIALS IN PROMOTION AND TENURE DOSSIERS

1. Format, Scope, and Custody of Dossier Materials

To facilitate the work of review committees and responsible University officials, candidates applying for promotion and/or tenure should arrange their binders and supporting material in the order listed below. Candidates are limited to only one 3-ring binder (up to 3” in size) and one box for supporting materials (primarily the candidate’s scholarly and creative projects).

When a candidate is applying for promotion and tenure in the same year, one portfolio should be used for both with a divider marking off the section for official recommendations for promotion.

Candidates should restrict the inclusion of materials in their evaluation files to those that are germane to fair consideration of candidate’s contributions. Evaluation files that include irrelevant or redundant materials inhibit the work of committees and administrators and are inimical to the best interests of the faculty member and the institution.

Once the candidate submits the dossier, the custody of the dossier moves from Chair to Dean to Provost, in accordance with the tenure and promotion schedule. Should the candidate wish to include additional material after submitting the dossier, the custodian of the dossier will indicate date of receipt on the added materials. The custodian must notify the candidate if materials (e.g., late-arriving evaluations) are added to the file after submission. A copy of the materials will be sent to the faculty member within 5 days. See the Collective Bargaining Agreement for additional detail. Materials added after submission shall not trigger reevaluation from reviewers who have already rendered judgment.

2. Order of Dossier Materials

a. A copy of the approved departmental promotion and tenure criteria.

b. Statement of contributions justifying tenure and/or promotion. This statement should include the candidate’s self-evaluation concerning teaching, creative and scholarly activities, and service. The candidate should address not only the quantity but the quality and significance of his/her work.

c. Curriculum Vitae (CV). The CV should clearly define publication headings; e.g., books and other monographs, journal articles, conference proceedings, and technical reports. Published items and items forthcoming should be clearly distinguished and separately listed. The CV should also distinguish work that is peer reviewed.

d. Letter of initial appointment.
e. Annual work assignments and Chair’s evaluations of the candidate’s performance since joining UWF or since his/her last promotion. Candidates may initially choose to redact the Chair’s statements regarding progress toward tenure; however, the candidate must honor a request from any reviewer to submit the statements of progress.

f. Student evaluation data. Candidates must submit numerical results of all student course evaluations that have been conducted during the 3 years preceding the review. Those who have been on sabbatical or leave during the preceding 3 years should submit all student course evaluations conducted over the 4 years preceding the review. Ideally the 3 most recent years of student evaluation data should be considered. If any data are missing for any other reason, the candidate shall offer an explanation.

g. External evaluations (3 letters, extra letters may be placed in bin).

h. Internal letters of support (3 letters from UWF colleagues outside the home department).

i. Departmental peer evaluations.

j. Secret ballot results (in the case of tenure).

k. Recommendation of Chair. (Any rebuttal letter.)

l. Recommendation of CFPC (including the vote tally). (Any rebuttal letter.)

m. Recommendation of Dean. (Any rebuttal letter.)

n. Recommendation of UFPC (including the vote tally). (Any rebuttal letter.)

o. Recommendation of Provost. (Any rebuttal letter.)

p. Documentation of special circumstances. Any situations that require a departure from expected procedure should be documented in this section. Examples include:

- If a candidate has been unsuccessful in a prior application for tenure and/or promotion, the candidate must include the judgments and recommendations (Chair, CFPC, Dean, UFPC, Provost, and President) from the prior deliberation in this section of the current dossier.

- If a candidate or Chair has requested materials to be included after the dossier has been submitted, the cover letter making the request should be included in this section of the current dossier.

q. List of supporting materials, e.g., books, reprints, and research reports. (Examples of scholarship and/or creative activity should be submitted in a separate container along with selected materials addressing teaching and service.)

F. ANNUAL EVALUATION PROCEDURES

1. Evaluation Period

The evaluation period should correspond to the type of appointment. For example, 12-month faculty should be evaluated over the entire year whereas 9-month faculty should
be evaluated only for those semesters included in the regular contract; summer teaching for 9 month faculty members should not be included.

2. Materials

a. Faculty Prepared Materials
   For the evaluation period, the faculty member will prepare the following for submission to the Chair:
   
   - Updated CV
   - CAERS forms or other indication of distribution of effort
   - Statement of contribution. The purpose of the statement is to highlight noteworthy achievements of the year. Any extenuating circumstances that should be considered in rendering judgment about unusual constraints should also be articulated in the statement. The contribution form may include a self-assessment of quality where endorsed by the department or college. The statement of contribution should not merely repeat or list data provided in either the vita or CAERS form. Instead, the emphasis should be on quality of effort and scope of impact. Chairs, Deans, and the Provost may require specific forms or narrative formats for the statement of contribution.

   Examples of appropriate contributions may include the following:
   
   a) indication of high quality of course-related student contacts, including advising, counseling, student conferences, and thesis and/or intern supervision;
   b) high quality of course syllabi that provide appropriate and clear direction, including articulation of student learning outcomes;
   c) evidence of appropriately rigorous intellectual demands made upon students, including examples of high quality of test design or assignments;
   d) peer or Chair classroom evaluation;
   e) assessment data reflecting appropriate student progress in mastering course content and achieving course outcomes;
   f) description of substantial revision of established courses or development and teaching of new courses;
   g) description of professional growth that will enhance the faculty member's value as a teacher;
h) peer evaluations that identify progress made toward achieving pedagogical goals;

i) evidence of quality derived from peer reviewed process related to a performance or scholarly work;

j) a formal note of appreciation for service that emphasizes scope of impact or significance of service; and

k) self-assessment that highlights how submitted material supports success in fulfilling course objectives and achievement at a particular performance level.

b. Student Evaluation Data

Student evaluations will be conducted on all courses and all sections for the contract period. The faculty member has access to the evaluations only after grades in the courses have been assigned.

Candidates must submit numerical and narrative student comments on all courses conducted during the regular academic year. Candidates may choose to submit additional evaluation material from the summer session, but it is not required.

3. Order of Materials for Annual Evaluation File

   a. Assignment letter;
   b. Statement of contributions;
   c. CAERS form or equivalent;
   d. Updated vita;
   e. Student Evaluation Data;
   f. Any relevant materials that support the evaluation;
   g. Chair’s evaluation and appraisal of progress toward tenure and promotion;
   h. Dean’s evaluation; and
   i. Rebuttal letters, if any, should be placed immediately following the rebutted evaluation.

4. The Chair’s Review

The Chair and faculty member discuss the evidence the faculty member has submitted. The Chair considers and weighs all evidence relevant to the decision and produces a defensible judgment that is subsequently reported to the faculty member. The Chair may propose that judgment as tentative and request further feedback and discussion from the faculty member. The Chair’s judgment will include both quality of performance during the academic year as well as estimate progress, or lack thereof, toward relevant tenure and promotion decisions.
Both the Chair and the faculty member sign the evaluation. Faculty signature signifies that the discussion has been conducted. It does not connote agreement with the Chair’s conclusions. The Chair submits to the Dean the total annual evaluation file on which the Chair’s judgment was based.

5. Faculty Rebuttal

A faculty member who is convinced that the Chair has rendered judgment that underestimates performance is encouraged to submit a written rebuttal to the Chair’s evaluation, which becomes an official part of the annual evaluation file.

6. Dean’s Review

The Dean’s judgment about both annual performance and progress of tenure and promotion decisions must be rendered in writing. Any unresolved differences between Chair and Dean evaluations shall be discussed concurrently among the Chair, Dean, and faculty member. Either the Chair or Dean can initiate a meeting to address and resolve the difference in opinion.

7. Provost’s Review

Generally, only those annual evaluations for tenure-earning faculty will be forwarded to the Provost for review.

8. Review Calendar for Annual Evaluations

The calendar governing annual evaluations should be followed by all parties involved in the process and should reflect the general targets below:

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAY 30</td>
<td>Faculty member provides evaluation file to Chair.</td>
</tr>
<tr>
<td>JUN 20</td>
<td>Chair shares his/her written evaluation with faculty member.</td>
</tr>
<tr>
<td>JUN 27</td>
<td>Faculty provides a rebuttal letter (if he/she chooses) which is added to the evaluation file. The complete file is then forwarded to the Dean.</td>
</tr>
<tr>
<td>JUL 18</td>
<td>Dean provides his/her written evaluation to the faculty member.</td>
</tr>
<tr>
<td>JUL 25</td>
<td>Faculty provides a rebuttal letter (if he/she chooses) which is added to the evaluation file. The complete file is then forwarded to the Provost (tenure-earning faculty only).</td>
</tr>
</tbody>
</table>
G. SUSTAINED PERFORMANCE EVALUATION

1. Process

Based on the Collective Bargaining Agreement (2014-2017), the Sustained Performance Evaluation Process has changed. Please reference CBA articles 11.1(b) and 11.3(b) for full details.

Tenured Professors and Associate Professors, University Librarians and Associate University Librarians will receive a Sustained Performance Evaluation. CBA 11.1(b)

The purpose of the Sustained Performance Evaluation is to assess the faculty member's sustained performance and professional growth as of the date of the evaluation. The expectations for sustained performance shall be aligned with the qualifications for tenure in place at the time of the evaluation. For faculty in the ranks of Librarian or Associate University Librarian, the expectation shall be aligned with the qualifications for promotion in place at the time of the evaluation. CBA 11.3(b)(1)

The Sustained Performance Evaluation shall be conducted in the tenured faculty member's sixth (6th) year after receiving tenure and every sixth (6th) year thereafter and will evaluate the faculty member on his or her performance over the previous six (6) year period. Each faculty member may elect a one (1) year deferral once in his or her career at UWF. This would allow the sustained performance evaluation to be conducted in the seventh (7th) year. For University Librarians and Associate University Librarians this Sustained Performance Evaluation shall be conducted the sixth (6th) year after appointment or promotion to the rank of University Librarian or Associate University Librarian and every sixth (6th) year thereafter. CBA 11.3(b)(2)

There are three tiers for the Sustained Performance Evaluation. The attainment of Distinguished (Tier One) shall reflect distinction that clearly exceeds the University and departmental tenure standards and expectations in place at the time of the evaluation for excellence in quantity, quality or both. The attainment of Satisfactory (Tier Two) shall satisfy the University and departmental tenure standards and expectations in place at the time of the evaluation for excellence in quantity, quality or both. An evaluation that is Unsatisfactory (Tier Three) reflects performance that does not satisfy the University and departmental tenure standards and expectations in place at the time of the evaluation for excellence in quantity, quality or both. A Tier Three Rating will require the faculty member to enter into a formal Performance Improvement Plan. University
Librarians and Associate University Librarians will be evaluated in the same manner except that the University and departmental promotion standards and expectations in place at the time of the evaluation will apply. *CBA 11.3 (b)(3)*

Faculty receiving a ‘Distinguished’ (Tier 1) or ‘Satisfactory’ (Tier 2) evaluation are eligible for a base salary increase. Faculty receiving an ‘Unsatisfactory’ (Tier 3) evaluation are not eligible. *CBA 11.3 (b)(4)* is summarized in the chart below.

<table>
<thead>
<tr>
<th>Rank</th>
<th>SPE Tier</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor / University Librarian</td>
<td>Tier 1</td>
<td>$6,000</td>
</tr>
<tr>
<td>Professor / University Librarian</td>
<td>Tier 2</td>
<td>$4,000</td>
</tr>
<tr>
<td>Professor / University Librarian</td>
<td>Tier 3</td>
<td>no increase</td>
</tr>
<tr>
<td>Assoc. Professor / Assoc. Univ. Librarian</td>
<td>Tier 1</td>
<td>$3,000</td>
</tr>
<tr>
<td>Assoc. Professor / Assoc. Univ. Librarian</td>
<td>Tier 2</td>
<td>$2,000</td>
</tr>
<tr>
<td>Assoc. Professor / Assoc. Univ. Librarian</td>
<td>Tier 3</td>
<td>no increase</td>
</tr>
</tbody>
</table>

2. **Steps of the SPE Evaluative Process for Faculty Members.**

The Faculty Member submits his or her dossier to his or her Chair, Director, or Unit Head for review. The Chair/Director/Unit Head will make a recommendation regarding whether the employee has met the University and departmental tenure criteria in place at the time of the evaluation. The dossier will be forwarded to the Dean. The Dean will ask the College Faculty Personnel Committee (CFPC) to make a recommendation on the same question. The Dean will then review the dossier and the recommendation of the CFPC, and make a recommendation to the Provost regarding whether the tenure criteria in place at the time of the evaluation were met and recommend to the Provost the SPE Tier at which the employee should be ranked. The Provost will review the dossier and consider the recommendations of the Chair/Director/Unit Head, CFPC, and Dean. The Provost will make a final decision on whether the employee has met the University and departmental tenure criteria in place at the time of the evaluation, and will assign the employee an SPE ranking of Tier One, Tier Two or Tier Three.

3. **Steps of the SPE Evaluative Process for Librarians.**

The Librarian will submit his or her SPE binder to the Library Faculty Committee (LFC) subcommittee for review. The Committee will make a recommendation to the employee’s supervisor regarding whether the employee met the applicable promotion criteria in place at the time of the evaluation. The supervisor will review the SPE binder and the LFC recommendation and make a recommendation to the Dean of Libraries. The Dean will review the dossier, recommendations of the supervisor and LFC, and make a recommendation to the Provost regarding whether the employee met the applicable promotion criteria in place at the time of the evaluation and regarding the SPE Tier at which the employee should be ranked. The Provost will make a final decision
on whether the employee has met the applicable promotion criteria in place at the time of the evaluation and assign the employee an SPE ranking of Tier One, Tier Two or Tier Three.

4. Dossier for Sustained Performance Evaluation*

All materials, except for supporting documents, should be submitted in a 3-ring binder (up to 3” in size).

The materials to be submitted by the faculty member being evaluated will be the same as an application for tenure or in the case of a University Librarian or Associate University Librarian as an application for promotion. There shall be no internal or external letters of recommendation included in the submission. Evidence of sustained performance must be substantive and detailed with documentation. CBA 11.3 (b)(6)

The faculty member’s dossier for the Sustained Performance Evaluation shall be submitted to the faculty member’s Department Chair for review and a recommendation to the Dean. The Dean will ask the College Faculty Personnel Committee for a recommendation. The Dean will make a separate review and recommendation to the Provost. The recommendations of the Chair, College Faculty Personnel Committee and Dean will be submitted to the Provost who will conduct a separate review and make a final decision. CBA 11.3 (b)(7)

*Librarians should refer to the Policies and Procedures for Assignment, Evaluation, Merit & Promotion.

Order of Materials

1) A copy of the approved, current, departmental tenure criteria.
2) Statement of contributions justifying sustained performance and establishing how the employee meets the tenure criteria in place at the time of the evaluation. This statement should include the faculty member’s self-evaluation concerning teaching, creative and scholarly activities, and service. The faculty member should address not only the quantity but the quality and significance of his/her work.
3) Curriculum Vitae (CV). The CV should clearly define publication headings; e.g., books and other monographs, journal articles, conference proceedings, and technical reports. Published items and items forthcoming should be clearly distinguished and separately listed. The CV should also distinguish work that is peer reviewed.
4) Letter conveying tenure and letter conveying of promotion to highest rank.
5) Annual work assignments and Chair’s evaluations of the faculty member’s performance for the previous six (6) year period.
6) Student evaluation data. Faculty members must submit numerical results of all student course evaluations that have been conducted during the 3 years preceding the review. Those who have been on sabbatical or leave during the preceding 3 years should submit all student course evaluations conducted over the 4 years preceding the review. Ideally the 3 most recent years of student evaluation data should be considered. If any data are missing for any other reason, the candidate shall offer an explanation.

7) Recommendation of Chair.

8) Letter rebutting Chair’s recommendation, if applicable.

9) Recommendation of CFPC (including the vote tally).

10) Letter rebutting CFPC’s recommendation, if applicable.

11) Recommendation of Dean.

12) Letter rebutting Dean’s recommendation, if applicable.

13) Documentation of prior SPE ratings.

14) Any situations that require a departure from expected procedure should be documented in this section. For example:
   • If a faculty member has requested materials to be included after he or she has submitted the dossier, the cover letter making the request should be included in this section of the current dossier.

15) List of supporting materials, e.g., books, reprints, and research reports. (Examples of scholarship and/or creative activity should be submitted in a separate container along with selected materials addressing teaching and service.)

5. Performance Improvement Plan

Faculty receiving "Unsatisfactory" ratings on a sustained performance evaluation will enter into a Performance Improvement Plan. The Performance Improvement Plan will be developed by the Chair in concert with the Dean within thirty (30) days of the date of the evaluation. The faculty member will be provided with an opportunity to provide input into the Performance Improvement Plan. The Performance Improvement Plan shall outline each of the areas needing attention and improvement so that the Faculty member shall meet the tenure standards (or promotion standards for Librarians and Associate Librarians) in place at the time of the evaluation, upon successful completion of the Performance Improvement Plan. The Performance Improvement Plan shall provide specific performance targets and a time period for achieving the targets.

The Performance Improvement Plan must be approved by the Provost. The Chair will meet regularly with the faculty member to review progress toward meeting the performance targets. However, it is the responsibility of the faculty member to attain the performance targets specified in the performance improvement plan within the specified time frame and demonstrate competency in his or her position. CBA 11.3 (b)(9)

6. Calendar (Actions must be completed by dates shown)
Librarian-specific parts are noted in red.

**2017**

**MAY 4**  The Provost notifies Deans of the Faculty/Librarians who will undergo a SPE during the upcoming academic year.

**MAY 8**  Dean’s Office notifies Faculty/Librarian, and Chair/Supervisor, that he or she will undergo a Sustained Performance Evaluation during the upcoming academic year.

**SEP 8**  Faculty/Librarians who are electing one-time one-year deferral must make election in writing and provide it to Chair/Supervisor by this date. A copy is sent to the Dean and Provost.

**SEP 11**  Faculty member provides dossier, including updated CV and all other required materials, to Chair.
Librarian provides dossier, including updated CV and all other required materials, to the Library Personnel Committee (LPC).

**OCT 16**  Chair reviews dossier and provides recommendation to the Dean. A copy of recommendation is sent to the faculty member.
LPC reviews dossier and provides recommendation to the Supervisor. A copy of recommendation is sent to librarian.

**OCT 23**  If faculty member wishes to rebut, he or she must submit rebuttal to Chair by this date.
If librarian wishes to rebut, he or she must submit rebuttal to Chair by this date.

**OCT 24**  Dean forwards dossier to College Faculty Personnel Committee so that it can make a recommendation.
LPC forwards dossier to Supervisor for recommendation.

**NOV 29**  College Faculty Personnel Committee adds its recommendation to the dossier and returns it to the Dean. A copy of recommendation is sent to faculty member.
Supervisor reviews dossier and provides recommendation to the Dean. A copy of recommendation is sent to librarian.

**DEC 6**  If faculty member wishes to rebut CFPC recommendation, he or she must submit rebuttal to Dean by this date.
If librarian wishes to rebut Supervisor recommendation, he or she must submit rebuttal to Supervisor by this date.

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**2018**

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<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>JAN 8</td>
<td>Dean reviews dossier and makes a recommendation. A copy of recommendation is sent to faculty/librarian.</td>
</tr>
<tr>
<td>JAN 16</td>
<td>If faculty/librarian wishes to rebut Dean’s recommendation, he or she must submit rebuttal to Dean by this date.</td>
</tr>
<tr>
<td>JAN 17</td>
<td>Dean provides dossier to Provost.</td>
</tr>
<tr>
<td>FEB 20</td>
<td>Provost informs faculty/librarian of SPE decision in writing, which copies to Chair/Supervisor, College/Library Personnel Committee Chair, and Dean.</td>
</tr>
<tr>
<td>MAR 23</td>
<td>Any Performance Improvement Plan(s) are due to Provost.</td>
</tr>
<tr>
<td>APR 13</td>
<td>Provost reviews and approves. Performance Improvement Plan.</td>
</tr>
</tbody>
</table>
APPENDIX A

GUIDELINES FOR DEPARTMENTAL ANNUAL EVALUATION PERFORMANCE INDICATORS

Departments must use scaled performance indicators that clearly delineate the differences between the performance levels of distinguished, excellent, good, fair, and poor. Departments must not merely list the performance indicators without providing guidance about the relative importance of the indicators that are required for each performance level. Moreover, those indicator measures must both cohere with university criteria described in this document and fairly capture unique characteristics of their disciplinary and departmental cultures.

The following sections provide guidelines for departments on how to make appropriate judgments for tenure and promotion recommendations on quality of performance (i.e., distinguished, excellent, good, fair and poor).

TEACHING PERFORMANCE INDICATORS

Distinguished Performance
Distinguished performance demonstrates that the weight of evidence supports an unusually high degree of quality in teaching as shown by the following indicators that build upon performance indicators for excellence.

Performance indicators that may be used to support distinguished ratings:
  a. Numerical student evaluation data document clear statistical exceptionality
  b. Narrative statements emphasize powerful impact on learner or transformative learning experiences
  c. Teaching awards honor high caliber of performance
  d. Leadership evident in the promotion of high quality teaching and curriculum development in the department

Excellent Performance
Excellent performance represents consistent high quality teaching with positive outcomes for students as reflected by the performance indicators below.

Performance indicators that may be used to support excellent ratings:
  a. Student evaluations document consistently positive impact on learning (above average)
  b. Teaching philosophy provides foundation for coherent course planning and activities
  c. Syllabi outlines comprehensive, clear, and appropriate performance expectations
  d. Assessment practices enhance student learning and contribute to department needs
  e. Goals and course content routinely provide evidence of successful continuous improvement effort
  f. Pedagogical practices facilitate optimal learning conditions
  g. Student support practices facilitate optimal student development
h. Advising, mentoring, and student supervision practices receive consistent favorable review
i. Special teaching assignments (e.g., honors, capstone, General Studies) executed with expert skill
j. Appropriate standards of academic integrity promoted, including respect for students and their rights
k. Participates voluntarily in professional development activities to improve teaching quality and flexibility

**Good Performance**

Good performance demonstrates overall teaching effectiveness but some minor areas for concern. In general, the weight of evidence suggests that teaching performance is below what is required for tenure and promotion decisions.

Performance indicators that may be used to support good ratings:

a. Student evaluations data document adequate impact on learning
b. Teaching philosophy expressed in course planning and activities
c. Syllabi provide reasonably clear and appropriate expectations
d. Assessment practices support student learning and contribute to department needs
e. Goals and course content give evidence of continuous improvement effort
f. Majority of pedagogical practices are appropriate and effective
g. Majority of student support practices are appropriate and effective
h. Advising, mentoring, and student supervision practices are appropriate and effective
i. Special teaching assignments (e.g., honors, capstone, General Studies) executed with reasonable skill
j. Maintains appropriate standards of academic integrity, including respect for students and their rights
k. Participates voluntarily in professional development activities when directed to do so

**Fair Performance**

Fair performance demonstrates some positive teaching outcomes but produces major areas for concern for the department. The weight of evidence suggests that teaching performance in this performance category is below what is required for tenure and promotion decisions.

Performance indicators that may be used to support fair ratings:

a. Student evaluations data document areas of moderate concern (ratings below the department average)
b. Teaching philosophy may not be clearly expressed in course planning and activities
c. Syllabi need to provide clearer and more appropriate expectations
d. Assessment practices show some difficulty in supporting student learning and meeting department needs
e. Goals and course content reflect limited continuous improvement effort
f. Some pedagogical practices need attention
g. Some student support practices need improvement
h. Advising, mentoring, and student supervision practices need improvement
i. Special teaching assignments (e.g., honors, capstone, General Studies) could be executed with greater competence
j. Occasional challenges related to academic integrity
k. Some indications of disrespect for students and their rights
l. Does not typically participate in teaching development activity

Poor Performance
Poor performance demonstrates serious problems in attaining success in teaching role as reflected either by (1) a combination of many negative indications, or (2) fewer but more extreme behaviors that produce substantial negative outcomes on students and their learning. In general, the weight of evidence suggests teaching performance is well below the department norms. Because of the high priority placed on teaching at UWF, this level of performance requires major remedial work.

Performance indicators that may be used to support poor ratings:
   a. Student evaluations data document consistent and substantive problems (ratings well below the department average)
   b. Teaching philosophy missing, poorly articulated or poorly expressed in course activities and planning
   c. Syllabi fail to establish clear and relevant expectations
   d. Assessment practices are inadequate to support student learning and department needs (e.g., learning outcomes are inadequate, inappropriate, or missing; testing strategies are not effective or fair)
   e. Goals and course content reflect no continuous improvement efforts
   f. No assistance rendered for department assessment plan
   g. Pedagogical practices are unsound (e.g., disorganization; late, missing, unhelpful feedback; standards too lax or too challenging; routinely poor preparation; disengaging, chaotic, or hostile classroom environment)
   h. Student support practices are unsound (e.g., late or absent for class, not responding to email, not keeping keep office hours, showing favoritism)
   i. Consistent and very negative ratings in advising, mentoring, and supervision of students scholarly or creative activities
   j. Special teaching assignments (e.g., honors, capstone, General Studies) avoided or poorly executed
   k. Chronic academic integrity concerns identified including evidence of disrespect for students and their rights
SCHOLARSHIP AND CREATIVE PROJECTS PERFORMANCE INDICATORS

Distinguished Performance
Distinguished performance demonstrates unusually high degree of skill in design and execution of scholarly and creativity projects as shown by the performance indicators below that build upon the performance indicators for excellence. In general, the weight of evidence in this performance exceeds department criteria for excellence.

Performance indicators that may be used to support distinguished ratings:

a. Both quantity and quality measures clearly exceed department expectations
b. Wide national or international audience
c. National or international recognition earned for quality
d. Awards received for scholarly or creative projects
e. Achievements in continuing professional training show unusual merit
f. Strong record of grant pursuit, grant awards, successful completion, and dissemination of results

Excellent Performance
Excellent performance demonstrates satisfactory execution of scholarship or creative activity agenda as shown by the performance indicators below.

Performance indicators that may be used to support excellent ratings:

a. Refined scholarly agenda or creative plan well suited to regional comprehensive university context
b. Meets department production targets for both quantity and quality of scholarship
c. Favorable review by and respect from majority of colleagues in the department for scholarly and creative works
d. Potential for wide recognition of quality outside of the University
e. Completes appropriate schedule of professional educational opportunities (e.g., licensure, technology training, etc.) in a timely fashion
f. External support captured to facilitate scholarship or creative activities agenda
g. Adheres to relevant ethics conventions for scholarly and creative projects
h. Skilled time management facilitates success of scholarly agenda or creative plan
i. Skilled use of collaboration as demonstrated by the commitments proposed, accepted, and fulfilled (e.g., group projects, creative activities, and grants)

Good Performance
Good performance demonstrates moderate tangible progress in scholarship or creative activity agenda as shown by the performance indicators below but the weight of evidence suggests that work falls mildly below department standard of excellent.

Performance indicators that may be used to support good ratings:

a. Specific scholarly agenda or creative plan identified, including appropriate timelines and preferred dissemination or display venues
b. Scholarly and creative projects completed but falls short of department criteria related
to the rate of completion or quality of dissemination venue.
c. Appropriate professional educational opportunities pursued
d. Involvement with professional organizations that will support scholarly or creative goals
e. Grants developed and submitted to capture external support
f. Adheres to relevant ethics conventions for scholarly and creative projects
g. Reasonably effective time management strategies contribute to success
h. Commitments made and reasonably fulfilled in collaborative activity (e.g., group
projects, creative performances, and grants)

**Fair Performance**
Fair performance demonstrates only minor tangible progress toward executing a scholarly and
creative agenda. In general, the weight of evidence suggests that scholarly and creative projects
are moderately below the department norms. This level of performance offers no immediate
support for tenure or promotion decisions but provides evidence of some promise for future
productivity. Remediation is recommended.

Performance indicators that may be used to support fair ratings:
a. General focus of interest identified, but falls short of rate of production required for
promotion and tenure decisions
b. Evidence of some completion of beginning stages of scholarly or artistic process, (e.g.,
data collection, manuscript outline, artistic plan), but falls short of the production
required for tenure and promotion decisions
c. Exploration of possible scholarly collaboration or resource network to help with specific
plan
d. Identification of professional organizations that will support scholarly and creative goals,
but not actively involved at this time
e. Appropriate professional educational opportunities (e.g., licensure, technology training,
special educational opportunities) identified
f. Sources of external support for scholarship or creative activities agenda identified and
explored
g. Judgment about ethical standards for scholarly and artistic production may be
problematic at times
h. Questionable time management strategies limit production
i. Erratic performance in collaborative activities (e.g., grants, research collaborations,
creative performance) negatively influences project quality

**Poor Performance**
Poor performance demonstrates serious problems in developing a scholarship or creative
agenda. In general, the weight of evidence suggests that scholarly and creative production is
well below the department norms attributed to inactivity or avoidance, absence of planning,
poor time management, problematic collaborative behavior, or ethical challenges. In such
circumstances, major remediation efforts may be identified and pursued.
Performance indicators that may be used to support poor ratings:
   a. Scholarly agenda or creative plan has not been identified (e.g., central focus of career interest has not materialized)
   b. Minimal pursuit of scholarly and creative projects
   c. Avoidance of professional organization involvement that could help disseminate or display faculty work
   d. Failure to pursue expected professional enhancement activities (e.g., licensure, continuing education, technology training)
   e. Avoidance of grant exploration or pursuit
   f. Ethical regulations violated regarding scholarly or artistic production
   g. Poor time management violated regarding scholarly or artistic production
   h. Unreliability and problematic collaborative skills harm project completion and quality

SERVICE PERFORMANCE INDICATORS

Distinguished Performance
Distinguished performance demonstrates a high degree of skill in service contributions as shown by the performance indicators below that build upon performance indicators for excellence. In general, the weight of evidence in the faculty service contributions exceeds the criteria for excellent.

Performance indicators that may be used to support distinguished ratings:
   a. Leadership demonstrated in targeted arenas of service (e.g., holds elected office)
   b. Collaboration is skillful and innovative
   c. Problems solved proactively through vigorous contributions
   d. Wide external recognition (local, national or international audiences) or awards achieved for quality of service contributions
   e. Community service, if applicable, provided significant and measurable impact; service provides excellent synergy between the faculty member’s area of expertise and the service function

Excellent Performance
Excellent performance demonstrates satisfactory execution of service contributions as shown by the performance indicators below.

Performance indicators that may be used to support excellent ratings:
   a. Scope and effort level meet department criteria
   b. Colleagues view contributions to department as effective
   c. Service agenda well suited to regional comprehensive university mission
   d. Service contributions represent strategic decisions that balance demands from the discipline, department, campus, and community
   e. Potential shown for wide recognition inside and outside of the university
Good Performance
Good performance demonstrates *moderate* tangible progress in service contributions but may reflect some minor challenges that interfere with excellent performance. The weight of evidence suggests that work falls mildly below department criteria of excellent.

Performance indicators that may be used to support good ratings:
- a. Emerging service agenda reflects reasonable expectation for rank
- b. Selection of service activity expresses understanding of faculty service role in regional comprehensive university
- c. Usually participates actively and constructively in service activity
- d. Usually effective in service as citizen of department
- e. Balance across service obligations may be a struggle
- f. Community service, if applicable, provided reasonable synergy between the faculty member’s area of expertise and the service function

Fair Performance
Fair performance demonstrates only minor tangible progress in service contributions that can be the result of many factors, including limited pursuit of service, passive participation, or inability to manage obligations. In general, the weight of evidence suggests that service is moderately below department norms. Remediation is recommended to assist the faculty member to come to terms with the service obligations and appropriate behaviors to achieve positive outcomes in the regional comprehensive university context.

Performance indicators that may be used to support fair ratings:
- a. Appropriate arenas for service identified and explored
- b. Minimal contributions made in service role (e.g., "sits" on committees as compared to active participation)
- c. Recognition of service obligation in faculty role shapes consideration
- d. Over-commitment to service spreads faculty time and energy too thinly to facilitate effectiveness

Poor Performance
Poor performance demonstrates serious problems in fulfilling appropriate service role for faculty. In general, the weight of evidence suggests that service is well below the department norms. Remediation should be required to help the faculty member develop an appropriate orientation to service in a regional comprehensive university context and strategic plan to accomplish that objective.

Performance indicators that may be used to support poor ratings:
- a. Service activity nonexistent or very poor in quality, producing a potentially adverse impact on the goals of the relevant organization
- b. Significance of the obligation of service in the faculty role in a regional comprehensive university not apparent (e.g., faculty seems resistant or oblivious to service needs)
- c. Community service, if applicable, does not in any way provide synergy between the faculty member’s area of expertise and the service function
APPENDIX B

EVALUATION FORM FOR DEPARTMENT COLLEAGUE REVIEW FOR NOMINEES BEING CONSIDERED FOR PROMOTION

DEPARTMENT OF: ________________________________

COLLEGE OF: ________________________________

UWF policy provides that each nomination for promotion shall be acted upon, with careful consideration being given to the qualifications of the faculty member, including evaluations by colleagues. After carefully reviewing the candidate’s dossier, including the departmental criteria for awarding promotion, please complete the evaluation form below which will help in the evaluation process. Please deliver your completed evaluation form to your department chair by [insert date], for inclusion in the dossier being assembled.

PEER EVALUATION FOR:  Insert name

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<tr>
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<th>Excellent</th>
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<th>Insufficient Information</th>
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Please attach additional comments if needed.

EVALUATOR: ________________________________

DATE: ________________________________
APPENDIX C

EVALUATION FORM FOR DEPARTMENT COLLEAGUE REVIEW FOR NOMINEES BEING CONSIDERED FOR TENURE

DEPARTMENT OF:  

COLLEGE OF:  

Insert name

Insert name

UWF policy provides that each nomination for tenure shall be acted upon, with careful consideration being given to the qualifications of the faculty member, including evaluations by colleagues. After carefully reviewing the candidate’s dossier, including the departmental criteria for awarding tenure, please complete the evaluation form below which will help in the evaluation process. Please deliver your completed evaluation form to your department chair by [insert date], for inclusion in the dossier being assembled.

PEER EVALUATION FOR:  

Insert name

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Please attach additional comments if needed.

EVALUATOR:  

DATE:  
APPENDIX D

SECRET BALLOT BY TENURED MEMBERS OF DEPARTMENT FOR NOMINEES BEING CONSIDERED FOR TENURE

DEPARTMENT OF: Insert name

COLLEGE OF: Insert name

SECRET BALLOT FOR: Insert name

_____YES  _____NO
Issue/Agenda Recommendation: Tenure as a Condition of Employment

Proposed Action: Approval

Background Information:

The University of West Florida Board of Trustees considers all nominations for tenure at its June meeting. Tenure nominations as a condition of employment will be considered as needed.

The following faculty are to be considered for tenure:

**Center for Cybersecurity**
**Dr. Tirthankar Ghosh**, Associate Director, Center for Cybersecurity; Professor, Department of Information Technology, Hal Marcus College of Science and Engineering.

**College of Arts, Social Sciences and Humanities**
**Dr. Kevin Scott**, Chair and Professor, Department of English.

**Usha Kundu, MD College of Health**
**Dr. David Strohmetz**, Chair and Professor, Department of Psychology.

Implementation Plan: Dr. Ghosh begins his appointment on August 8, 2018.
Dr. Scott begins his appointment on July 1, 2018.
Dr. Strohmetz begins his appointment on June 25, 2018.

Fiscal Implications: None

Supporting documents:

- **Dr. Tirthankar Ghosh**

- **Dr. Kevin Scott**
  [http://pages.uwf.edu/aadocs/bot/TENURE_Support_and_CV_Scott.pdf](http://pages.uwf.edu/aadocs/bot/TENURE_Support_and_CV_Scott.pdf)

- **Dr. David Strohmetz**
  [http://pages.uwf.edu/aadocs/bot/TENURE_Support_and_CV_Strohmetz.pdf](http://pages.uwf.edu/aadocs/bot/TENURE_Support_and_CV_Strohmetz.pdf)

Prepared by: George Ellenberg, Provost and Senior Vice President
474-2035, gellenberg@uwf.edu

Presented by: George Ellenberg, Provost and Senior Vice President
MEMO

Date: 25 April 2018

To: Dr. George Ellenberg, Provost and Senior Vice President

Via: Dr. Jaromy Kuhl, Interim Dean, Hal Marcus College of Science and Engineering

From: Dr. Matthew Schwartz, Acting Chairperson, Department of Information Technology

Re: Tenure review for Dr. Tirthankar Ghosh, UWF Center for Cybersecurity

I facilitated the Department of Information Technology tenure review for Dr. Tirthankar Ghosh, who was hired by the UWF Center for Cybersecurity.

There are two tenured faculty members in the department eligible to vote for tenure review. Both voted in person by secret ballot and unanimously (2-0) voted in support of tenure in the Department of Information Technology for Dr. Ghosh.

The envelope containing the secret ballots is attached. Please let me know if further information is needed.

Cc: Dr. Eman El Sheikh, UWF Center for Cybersecurity
A learning-oriented individual with 16 years of higher education experience, and 6 years of industry experience, with a passion for teaching, research, and outreach.

Career History

Professor
Computer Science and Information Technology
St. Cloud State University

July 2014 – Present
St Cloud, Minnesota

Associate Professor
Computer Science and Information Technology
St. Cloud State University

July 2010 – June 2014
St Cloud, Minnesota

Program Director
Information Technology Security program
St. Cloud State University

May 2009 – May 2015
St Cloud, Minnesota

Assistant Professor
Computer Networking and Applications
St. Cloud State University

August 2005 – June 2010
St Cloud, Minnesota

Graduate Assistant
Telecommunications and Networking Institute
Florida International University

January 2001 – August 2005
Miami, Florida

Systems Engineer and Executive
CESC Ltd, India

September 1994 - December 2000
Calcutta, India

Education

- M.S., Computer Engineering, Florida International University, Miami, Florida, August 2002.
- B.E., Electrical Engineering, Jadavpur University, India, July 1994.
Research Interest

- Intrusion detection and prevention
  - Designing systems to detect and deter intrusions
  - Profiling network attacks
- Security and performance in embedded sensor networks
  - Performance monitoring of real-time mesh networks with embedded devices
  - Security in mesh networks with embedded devices
- Behavior profiling in cyberspace
  - Human aspects of cybercrime
  - Profiling antecedent-behavior-consequence model

Professional Experience

Academic Experience

Doctoral Research
Telecommunications and Information Technology Institute, Florida International University

- Designed and simulated a secure routing protocol in wireless ad-hoc networks capable of withstanding attack from colluding malicious nodes.
- Designed a trust computational model to integrate with the above secure routing protocol in wireless ad-hoc networks.

Teaching Experience
Courses taught:
Cybersecurity (Formerly Information Technology Security), Department of Computer Science and Information Technology, St. Cloud State University

- Offensive and Defensive Security Principles and Techniques (have started teaching in Spring 2018): Offensive techniques including service enumeration, Target identification, Exploitation, Exploit code development, and Post exploitation; Defensive techniques including perimeter and host hardening, Anomaly detection, and Traffic profiling; Ethics, laws, and regulations, Business issues including Cyber threat communication, Threat hunting models, and Compliance; Human factors including Behavior profiling, and Antecedent-Behavior-Consequence model.
- Firewall and Penetration Testing: Design and configuration of firewalls, Secure network design, Firewall policies, Penetration testing including fuzz development, target identification, and buffer overflow.
• Computer Networks: Advanced concepts of computer networking, layered architecture, protocols and standards, network security, current trends and technologies in networking.
• System Administration: Theories and Practice, Administering and securing systems and networks, Advanced network scripting.
• Contemporary Topics in Networking: Network and system administration, Advanced network scripting for penetration testing.

M.S. in Information Assurance, Department of Information Systems, St. Cloud State University
• Intrusion Detection and Prevention: Theories of network intrusion detection and prevention, Anomaly and misuse detection, Application of statistical deviation measurement in traffic profiling, Traffic analysis using filters, Application of supervised and unsupervised learning, Data capture and analysis, Analysis of current intrusion detection tools. Designed hands-on labs and projects on vulnerability scanning and detection, building custom rules with Snort and Bro scripting to detect various attacks, using the ELK stack to log, parse, and visualize attack data.
• Security Protocols: Security analysis of protocols in the OSI layer, hands-on labs with DNS cache poisoning, ARP spoofing, packet manipulation with scapy.

Telecommunications and Information Technology Institute, Florida International University
• Network Security: Number theory and modular arithmetic, cryptographic protocols (including RSA,DES, Triple-DES, AES, Diffie-Hellman), wireless security challenges, ad hoc and sensor networks security issues and ongoing research.
• Mobile Computing: Location management algorithms in cellular and data-centric environment, GSM (architecture and algorithms), mobile IP, mobile ad-hoc networks
• Network Management: The functional components, namely, security management, configuration management, fault management, performance management and accounting management, Created a network testbed with Cisco 2600 router and 3750 layer3 switches for the students to configure VLANs and also run OSPF in the network.

Review of Books and Articles
• Journal of Networks.
• IEEE Transactions on Biomedical Engineering
• Colloquium for Information Systems Security Education (CISSE 2011, 12)
• Computer Communications Journal.
• International Joint Conferences on Computer, Information, and Systems Sciences, and Engineering (CISSE 2007).
• Wireless Communications and Mobile Computing Journal.

Grants and Contracts (as PI)
• Offering bridge course for two-year college students for transfer – funded by National Cyber Watch Center. $2,500.00. Summer 2017.
• GenCyber: summer camps on cyber security – funded by National Security Agency and National Science Foundation, $100,000.00. May 2016 – December 2016.
• CyberCorps: Scholarship for Service to create a collaborative learning environment between St. Cloud State University and Community Colleges – funded by National Science Foundation, $3.20 million. January 2015 – December 2019.
• GenCyber: summer camps on cyber security – funded by National Science Foundation, $150,000.00. January 2015 – December 2015.
• Building a penetration testing lab. Obtained from Department of Defense/National Security Agency. $21,000.00. July 2013.
• Short-term grant to participate in Oxford Round Table, Oxford, U.K. $3,500.00
• Special Projects Course on Research Issues in Wireless Ad Hoc Networks. Obtained from School of Graduate Studies. $4,698.00. Summer 2009.
• Special Projects Course on Security in Ad Hoc Networks. Obtained from School of Graduate Studies. $4,206.00. Summer 2007.

Grants and Contracts (as co-PI)
• Embedded systems and wireless sensor networks research lab – applied for continued funding from Emerson Process management, $95,585.60.
• Developing an embedded systems and wireless sensor networking lab – funded by Emerson Process Management, $60,000.00. July 2014 – June 2017
Course and Curriculum Development

- Developed an undergraduate/graduate course in Offensive and Defensive Security Principles and Techniques. The course will encompass various aspects of offensive and defensive security including technical, business, human, ethical, and compliance sides of information security. The course is being jointly developed with help from industry partners. A custom book has been created with Pearson for the course.
- Developed an one-credit lab extension for the Offensive and Defensive Security Principles and Techniques course that has advanced labs on intrusion detection using Bro and Python scripting, and exploit code development using Python and Metasploit.
- Worked with colleagues in Electrical and Computer Engineering, Atmospheric and Hydrologic Sciences, and Physics to create a minor in Computing.
- Worked with colleagues in the College of Business to develop a Master’s of Science program in Information Assurance. The program is currently offered jointly by Computer Science and Information Technology in the College of Science and Engineering and Information Systems in the College of Business.
- Developed a graduate-level course in Intrusion Detection and Prevention.
- Developed a course in Firewall and Penetration Testing.
- Developed a course on Network and System Administration.
- Developed an entry-level course in Computer Networking Concepts for students interested to pursue Computer Networking and Security majors.

Lab Development

- Developed an embedded systems and wireless sensor networks lab – grant funding obtained from Emerson Process Management.
- Created penetration testing labs on VMWare ESXi environment.
- Created state-of-the-art labs with Cisco routers, catalysts, and firewalls for student’s research and class projects.
- Created labs with Opnet simulator to help student projects.
- Created a HoneyNet in Cybersecurity research lab to simulate attack, and capture and analyze real-time traffic in a controlled lab environment.
- Created labs on packet manipulation and analysis using scapy.

Director of Information Technology Security program (May 2009 – May 2015)

- Overseeing the ITS budget, and budget planning
- Course scheduling
- Setting up assessment goals for the program
- Led the external review process
- Curriculum revisions
- Student advising
- Formulating system-specific and issue-specific policies for the program’s networks and systems
- Maintaining servers used for labs in the program

Other Professional Activities
• Organized three workshops on MN Women in Cybersecurity, each in 2015, 2016, and 2017. Planning for the next one in 2018 to be held on April 21, 2018.
• Organized MN Day of Cyber with high school and middle school students at the Science Museum of Minnesota on December 16, 2017.
• Worked as General Chair in WiBAN 2012, International Workshop on Wireless Body Area Networks for mHealth, held in Maui, Hawaii, Jan 30- Feb 2, 2012 Invited to be the Session Chair in IEEE Globecom 2010, Miami, FL, December 6 – 10, 2010.
• Invited to be the Program Committee member of 7th IEEE International Workshop on Pervasive Learning, Life, and Leisure (PerEL 2011), Seattle, WA, March 21 – 25, 2011.
• Organized the workshop in the International Conference on Scalable Information Systems (Infoscale 2006), Hong, Kong, May 29 – June 1 2006.
• Attended a workshop on Leading Change, held at SCSU in June 20 – 22, 2012, organized by Anderson Center.

Industry Experience

Network and Systems Design Engineer, CESC Ltd., India
- Studied the proposed Wide Area Network of the Company connecting 50 distribution stations, 5 generating stations and 10 warehouses
- Teamed up with colleagues to design a Wide Area Network connecting the company’s distribution and generation points with the warehouses over an area of 600 square miles
- Worked as a core team member in Enterprise Resource Planning (ERP) implementation in the company

Systems Executive, CESC Ltd., India
- Inventory modeling
- Inventory management system analysis, designing and fine tuning
- Automation of material management activities of two generating stations
- Implemented ISO 9002 in Material Management division
- System design for ERP implementation in the Inventory Control department

Professional Outreach and Presentations

- Minnesota Cyber Careers Consortium (MnC3) – started a state-wide cybersecurity initiative and founded MnC3 with colleagues from Metropolitan State University and Minnesota State University Mankato.
- Greater St Cloud Cybersecurity Consortium – started a St Cloud consortium partnering with Greater St Cloud Development Corporation, DEED, local employers, and five school districts.
- In the process of organizing MN Day of Cyber from MnC3 in conjunction with Science Museum of MN on December 16, 2017 with up to 90 middle school and high school students.
• Organized MN Women in Cyber Security workshops in March 2015, 2016, and 2017, all funded by the MN IT Center of Excellence (formerly Advance IT MN).
• Winter Institute – presented the Greater St Cloud Cybersecurity Consortium at the St Cloud Winter Institute on February 24, 2017.
• Presented GenCyber camp learning experience at the NIST National Initiative on Cybersecurity Education (NICE) conference on in San Diego, November 2015.
• Served on the GenCyber Camp Planning and Risk Management panel at the GenCyber meeting in Boston, MA, October 2016.
• Served on the GenCyber Camp Lessons Learned panel at the GenCyber meeting, San Francisco, CA, May 2016.
• Gave a presentation on Hands-on Learning and Tools Used at the GenCyber meeting, San Francisco, CA, May 2016.
• Gave a workshop on GenCyber with high school students at the Women in Cyber Security (WiCyS) conference in Dallas, Texas, March 2016.

Industry Partnership
• Partnered with Emerson Process Management and established research lab on embedded systems and wireless sensor networks firmware, security, and performance. Received a $60,000 grant from Emerson to establish the lab. Submitted a three-year extension to continue working on the research for an amount of $95,585.
• Partnered with Armature Systems to test and report new and cutting-edge exploits. Created a group with undergraduate and graduate students to work on the projects. Signed a non-disclosure agreement with Armature.
• Signed a non-disclosure agreement with Palo Alto Networks to be part of Palo Alto Academe, and use their curricular materials in classes.
• Partnered with Central Minnesota Credit Union to bring Penetration Testing projects in classes. Signed a non-disclosure agreement with them.

Selected Publications (Journals, Book Chapters and Conference Proceedings)
• Performance Evaluation of Multi-hop WirelessHART Network on a Real-life Testbed – accepted for publication in the Transactions on Networks and Communications, Society of Science and Education.
• Multi-stage Detection Techniques for DNS-based Botnets using Bro Scripting – in progress.
• Tactics Techniques and Procedures to Augment Cyber Threat Intelligence: A Comprehensive Survey – in progress.
RESEARCH STATEMENT

My research, for the past ten years, has primarily focused on applied hands-on approaches in the laboratories, where I have involved my students, both graduates and undergraduates. Since I started my tenure at St. Cloud State University more than twelve years ago, I built research labs on real-life wireless ad-hoc networks out of a research grant, HoneyNet testbed to conduct research on intrusion analysis, behavior modeling and anomaly detection techniques, and security and performance analysis of wireless sensor networks out of a research grant from Emerson Process Management. In addition, I have involved students in various industry-sponsored research projects, namely Emerson wireless sensor network testbed, ZigBee testbed and performance analysis, and security testing of next generation technologies and products from Armature Systems. I will briefly highlight two research projects that I have worked on in the past five years.

The first project was on creating an organizational role-based extrusion detection model with profile migration. Intrusion detection and prevention systems play a crucial role in the overall information security implementation of today’s organizations. Traditionally, signature-based and anomaly-based detections have been the two main methods of detection and prevention techniques. Signature-based intrusion detection systems are effective in detection and performance, but they are vulnerable to unknown threats like zero-day attacks. Extensive research have been conducted on anomaly detection and prevention based on users’ behavior profiling. However, as insider attacks increase, it has become equally important to monitor and analyze extrusion attempts. Behavior-based profile creation has a promising future in extrusion monitoring. However, profiling individual behavior has its limitations in that it tends to incorporate unintended behavior into the normal profile. In this research, user's organizational role has been integrated into profile creation further reducing number of false positives. In our research, we have created a model by combining role-based and individual-based profiles, and designed and implemented an algorithm to detect deviations. Four parameters were chosen to represent the profiles, two for each profile: CPU and memory utilization for the individual profile, and the number of processes and network connections for the role-based profile. The deviation is measured by the Kullback-Leibler (K-L) divergence. Kullback-Leibler divergence is a statistical function used to measure the proximity of two discrete probability distributions. Instead of using Standard Deviation (SD), which measures how much the new data set is deviated from the mean, K-L divergence is used in this study to get a more precise comparison with user profiles and current data. A prototype of the model is tested with three users belonging to three different roles. Our model is divided into three phases: the learning phase, the profile creation phase, and the detection phase. The learning phase describes how the data is gathered and saved to create user profiles. The profile creation phase describes how individual and role-based baseline profiles are created. Lastly, the detection phase detects extrusions in real time by measuring deviation from baseline profiles. A profile migration scheme is proposed to import user profiles at various login locations. The project was conducted in the security research lab created with funds from DoD/NSA, and results were published as a journal article in the Transactions of Networks and Communication published by Society of Science and Education (UK).

The second project was on performance evaluation of multi-hop WirelessHART network on a real-life testbed. The project was funded by Emerson Process Management, and was conducted in the embedded systems and wireless sensor network research lab established with funds from Emerson. Advances in WirelessHART standard in industrial control systems have led to performance evaluation and security analysis in both real-world testbeds as well as in controlled lab environments. In this study, we conducted months-long experiments with WirelessHART network in a multi-hop setting in our laboratory. Latency, stability, and reliability were used as metrics to measure performance of individual links and the overall network for five hops and seven hops. We deliberately deviated from following the best practices in designing the topology to study network performance under strained conditions. In addition to using metrics as defined in WirelessHART literature, we also studied
network stability over multiple hops with single paths. Our findings showed that having at least one low stability link can have an impact on multi-hop stability, while still maintaining a very high overall network reliability of 99.98% or higher. Details of the experiment along with results and lessons learned have recently been accepted for publication.

My future research plan would follow from what I have been doing since the past twelve-plus years. I would like to continue partnering with local and regional employers, and bring research projects. I would like to pursue external funding to establish research labs where students will be integral part and would contribute to cutting-edge research. I would like to keep working on the research topics that I am working on now, namely, anomaly detection in network intrusion/extrusion, network behavior profiling, and embedded systems security for industrial control systems. Recently, I have started looking into the human behavior side of cybersecurity, specifically exploring the possibility of studying the antecedent-behavior-consequence model of cyber criminals. I would like to continue exploring that topic, and would love to collaborate with researchers from other disciplines, namely, psychology, anthropology, organizational behavior, and statistics.

Tirthankar Ghosh
TEACHING STATEMENT

The good teacher explains, the superior teacher demonstrates, the great teacher inspires

My teaching philosophy is centered around inspiring students to become better citizens and empowering them with a sense of passion for the subject of cybersecurity. I focus my teaching techniques on project-based learning, problem-solving, and discussions to help students get a good grasp of the subject, with diffusion of ethical principles to help them grow as responsible citizens. Having taught twelve years at an institution of higher education, I still feel that my appetite to be better and effective teacher is not satisfied. Teaching is an extremely rewarding experience for me, and it gives me an unexplained pleasure seeing my students grasping a concept and using it to solve problems.

My primary teaching approach centers around two techniques: project-based learning, and problem-solving skills. During my tenure as a professor of Computer Science and Information Technology, primarily teaching courses in Cybersecurity and Computer Networks, I have designed and taught courses in Computer Networks, Intrusion Detection and Prevention, Firewalls and Penetration Testing, OSI Layer Security, Operational Safeguards, and Security Protocols. I started using project-based learning in 2010, when I first used it in my graduate class in Intrusion Detection and Prevention. The foremost task was to create the project groups. As the class had students from various backgrounds namely, Information Technology/Computer Science, Business, Criminal Justice, and Engineering, I asked students to form project groups with at least one student from each discipline. I assigned them projects in the fourth week of class, dividing the entire project in steps (sub-tasks) that they were supposed to complete in succession of two weeks. As students learned the concepts and techniques in class, they applied them towards their projects to finish each sub-task. Each sub-task was assessed every two weeks, and each group presented their progress in class. The final deliverables were the completed projects when each group had to present and demo the entire system. The students loved the learning environment, where they taught each other and learned as a group, and researched solutions as a group when they met obstacles. Students’ feedback was very enthusiastic, one student commented that he “had the best learning experience ever as we failed and succeeded as a group”. I repeated the techniques over and over again every year, and students’ feedback showed overwhelmingly positive learning experience.

Teaching is incomplete without assessing student learning. Mere student presentations, and grades obtained in exams labs and projects do not suffice as assessment tools by themselves. One of my techniques in assessing student learning is to constantly engage them in problem solving and discussion. Another method that I use in my classrooms is peer learning. I often assign labs that require extensive amount of background research before they start implementing it. I form student groups and have them discuss the problem first before jumping into any solution. As the groups learn together, and make mistakes together, they realize their mistakes and teach each other. It is extremely rewarding to see my students taking ownership of their work, and their mistakes, and engage in a meaningful discussion about solving the problems. Often students come and ask me if I would like to provide them with the solution if they come to me with a problem; my response to this is “Yes, absolutely, but you have to bring me a solution, no matter if it’s right or wrong, or no matter if it’s not the best solution. I want to see that you have thought through the problem”. My underlying philosophy with student learning and assessment is that I do not want to punish students for not learning; instead I would like to address their learning needs early on in a class and help them to learn the subjects. My experience shows that most students feel very comfortable in a learning environment where they not only learn from the teacher, but also from their peers.

Integrating my research and experiential learning into classroom is another important objective of my teaching. Over the past twelve years as my tenure at SCSU, I have focused on applied research, and have
established research labs, some funded and some unfunded. One example is the Embedded Systems and Wireless Sensor Network Security research lab that I have established with funding from Emerson Process Management. Our students have been working on those research projects, findings of which have been incorporated in some of our classes. I have also involved a group of students in research projects funded by Armature Systems, a California-based company who work on testing and evaluating threats. Students value these types of learning where they work closely with industry in real-world projects. I would love to continue partnering with local and regional employers to bring projects to my classes that would benefit and enhance students’ learning.

Tirthankar Ghosh
April 4, 2018

MEMO

To: Dr. George Ellenberg, Provost and Senior Vice President
To: Dr. Steve Brown, Dean
Dr. Jocelyn Evans, Associate Dean

From: Mr. John Markowitz, Interim Chair, Department of English

Re: Tenure review for Dr. Kevin Scott, Chair Department of English

I facilitated the Department of English tenure review for Dr. Kevin Scott, Chair of the Department of English. There are seven tenured faculty members in the department eligible to vote for tenure review. They each voted in person by secret ballot.

The vote in support of tenure (Vote 7 – 0). The envelope containing the secret ballots is attached.

Please let me know if further information is needed.
Kevin Michael Scott  
Associate Professor of English  
Albany State University  

EDUCATION  

Ph. D. American Studies, Purdue University, West Lafayette, 2004.  
Primary Area: Nineteenth-Century Literature and Culture.  
Secondary Areas: American Cultural History, Popular Culture,  
Critical Race Studies, English Education.  

Committee: Robert Paul Lamb (Chair), Susan Curtis, G. R. Thompson, Ryan Schneider  

Indiana State Teaching Certification, Indiana University-Purdue University,  
Fort Wayne, IN, 1993: English Education, Grades 5-12.  

M. A. Iowa State University, August 1991  
Major: English  

B. S. Ball State University, Honors College, 1989, with Honors in Writing.  
Major: English  

ACADEMIC APPOINTMENTS  

Interim Associate Dean, College of Arts and Humanities, Albany State University,  
Summer 2017—present.  
*Duties:* Coordinating student services and issues, overseeing curriculum approval  
process, developing assessment plans and handling accreditation needs, assisting  
dean in faculty evaluation and budget review, and other duties as assigned.  

Provost Fellow, Academic Affairs, Albany State University, Fall 2016—Summer 2017.  
*Duties:* Faculty Development, Curriculum Review and Revision, Development of Center  
for Faculty Excellence, Overseeing Implementation of Post-University  
Consolidation Processes, *Points of Pride Magazine*, Developing Promotion and  
Tenure and Chair Reappointment Policies, and other duties as assigned.  

Coordinator of English Education, Albany State University, Fall 2008—present.  
  o Directed Graduate Program in English Education.  
  o Developed programs in undergraduate, graduate, and post-baccalaureate English  
    Education with certification.  
  o Conducted regular recruiting efforts on and off campus.  

Associate Professor of English, Albany State University, Fall 2008—present.  
  o Notification of promotion to Full Professor received in October 2017. Effective  
    summer 2018.  
  *Literature:* Graduate courses in American Literature (romanticism through modernism),  
Research, and Adolescent Literature, Undergraduate courses in American  
literature as well as World Literature I & II.
**English Education:** Pedagogy Courses in Teaching Literature and Writing (Graduate and Undergraduate).

**Writing Courses:** Advanced Exposition (Graduate), Freshman Composition I & II.  
(Teaching Evaluations over 3.5 on a 4.0 scale in each year at ASU.)

**Asst. Professor of English, Director of English Education,** Elizabethtown College, 2002-2008.  
*Literature Courses:* American Literature Surveys, realism to postmodernism; African-American Literature; Film; Introduction to American Studies; Mark Twain Seminar; Reading and Writing the Short Story.  
*English Education:* Methods of Teaching Composition and Methods of Teaching Literature. Supervision of student teachers at area high schools.  
(Teaching Evaluations range from “High Average” to “High” in comparison to similar courses taught at Elizabethtown and other colleges using the IDEA evaluation system.)

**Graduate Instructor,** Purdue University, Fall 1997-Spring 2002.  
*English Education Courses:* Secondary Education, English Methods, including instruction on pedagogy of teaching writing and literature. Supervision of student teachers at area high schools.  
*Writing Courses:* Freshman Composition and Advanced Freshman Composition.  
(Average teacher evaluation in the top 15% department-wide.)

**Lecturer,** Indiana University-Purdue University, Fort Wayne, IN, 1991.  
*Freshman Composition:* Expository Writing.

**Graduate Instructor,** Iowa State University, 1989-1991.  
*Freshman Composition Courses:* Expository Writing and Argument and Research.

**High School English Teacher,** 1991-1997, at Wayne High School, Fort Wayne, IN, and Pike High School, Indianapolis, IN. Duties included courses in ninth- through eleventh-grade English, photography, journalism, newspaper, and yearbook courses.

**SCHOLARSHIP**

**Published**


*Marvel Comics’ Civil War* is an edited anthology of essays by comics scholars investigating how the *Civil War* storyline in Marvel Comics, which pitted superheroes against each other over basic questions of civil rights, law, and the American character. Marvel’s series acted as a complex political and social allegory for an American culture reacting to 9/11 and to all of the perceived exigencies of fighting the “War on Terror,” and this collection addresses the saga from such disciplines as psychology, political science, sociology, legal studies, literature, history, and more.

*The Porning of America* investigates the mechanisms and effects of the mainstreaming of not only the imagery of pornography but the ideologies as well. Part cultural history and part diagnosis, the book argues that mainstream culture has followed the pornography industry in adopting an ideology of sex and power that functions as a kind of identity theft, of one entity creating identity in the process of negating the other’s. The book also traces this ideology as it enters into other aspects of American culture, especially politics and the media. *The Porning of America* was well and widely reviewed academically and nationally, including a full page feature in Newsweek and being named a “Great Read” by *Ms. Magazine*.

“This is simply required reading for anyone interested in boys’ and girls’ development and for all of us who care about promoting a sexual ethic of mutuality and care.” — Sharon Lamb, author of *The APA Task Force Report on the Sexualization of Girls*

“This bold book is both pro-sex and pro-feminist. A critical and comprehensive examination of the misogyny and racism that are alive and well in porn and mainstream society, it nevertheless manages to celebrate sexuality.” — Jessica Valenti, author of *Full Frontal Nudity*

**Forthcoming:**


Spider-Man remains the central figure in a fictional universe that has established pop culture dominance in a variety of media. While other Marvel Universe figures such as Iron Man and Captain America have a long history of being deployed as exemplars of opposing political and cultural ideologies, Spider-Man has played the role of Super-Every-Man and largely remained above the fray. This status, however, has also made him the perfect foil for political, philosophical, and metafictional analyses using super-villains as cackling avatars. This anthology of critical essays by comics scholars investigates this phenomenon.


The scholarship of horror has been dominated by formal and psychological inquiry, and the horror boom of the 1980s has often been at the center of that study. Some scholars even deny the ability of the genre, given the form’s dedication to popular success, to engage in social commentary. This anthology of essays by horror scholars seeks to demonstrate otherwise. In a decade of conservative retrenchment in film, horror’s filmmakers enjoyed more freedom to critique their culture, and this volume explores their work.

**Books in Progress:**


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Figures such as Poe, Hawthorne, and Fitz James O’Brien are commonly cited as responsible for the development of speculative fiction in the United States, while female authors are generally ignored. Antebellum women writers, however, created a rich though critically ignored wellspring of women’s speculative fiction in such magazines as Godey’s and The Lowell Offering years before their male counterparts found wide success. The World Beyond presents a fully edited, annotated selection of the best of this work, with a lengthy introduction placing the stories and their authors in historical and cultural context, as well as individual biographical headnotes for each author. The manuscript is complete and is in the final revision stage while I ready queries and respond to reader notes.

Manuscript: The Burden of Honor: Mark Twain and the American Dilemma

In Mark Twain’s South, “honor” was both philosophy and social convention, and its stabilizing effects simultaneously brought moral structure to wild territories and justified harsh class differences and even slavery. From his earliest years, Sam Clemens saw the difficulties is performing honor as he watched his father act honorably in his business ventures—and fail miserably. His work demonstrates a steady reconstruction of the concept of honor, from jumping frogs to Tom and Huck and to the social and religious polemics of his last years. The Burden of Honor traces, in Twain’s life and work, his search for a version of the moral and social code he could follow. (In Progress: approx. 20,000 words.)

Articles, Chapters, and Reprint


Conference Presentations


“A Yankee Trick’: William Sidney Mount and the Stage Type in Early American Theater,” The Drama Conference at Ohio State University, April 2002.


“Good Girls Wanted, Boys Please Apply: Cross-Constructing Gender from Golden Age Comics to Modern Video Games,” The American Studies Symposium, Purdue University, May 1999.

“Initiating and Supporting a Cross-Curricular Learning Community at Purdue,” Council of Writing Program Administrators, Annual Summer Conference, Purdue University, July 1999.


ADMINISTRATIVE LEADERSHIP and SERVICE

Institutional Consolidation Work

In the fall of 2015, Georgia’s Board of Regents announced that Albany State University would consolidate with Darton State College. This process would involve over 800 discrete tasks to be overseen by the CIC. As part of this process, I was assigned a variety of leadership duties.

- **Consolidation Implementation Committee (CIC) Member:** Twenty individuals from each campus—administrators, faculty, and staff—were assembled to guide the process, establish institutional principles, and decide upon the recommendations of the Operational Working Groups (OWGs), which are tasked
with reviewing and making recommendations about the consolidation of individual university tasks.

- **Functional Area Coordinator**: As an FAC, I provided oversight and facilitation to the two OWGs developing policy for faculty and staff governance.

- **Co-Chair, First- and Second-Year Programs OWG**: With a colleague from Darton State College, our group is tasked with reviewing and consolidating programs associated with admissions, advisement, retention, and orientation, among others.

- **The “A” Team and OWGs 12/17**: “A” stands for Assessment and Accreditation. Preparation of the New University for reaffirmation with SACS, ensuring that consolidated and new programs meet SACS standards. Reviewing and proposing assessment plans for ASU curriculum and programs.

- **Program Location Committee**: Determining facility and resource allocation as the two campuses become one university.

- **General Education OWG**: This team developed a new core curriculum program for the consolidated university, with particular attention paid to constructing assessable learning outcomes for each area of the curriculum.

- **History of the New University**: I was tasked with collecting and writing the new official history of the combined institution. I led work sessions with faculty and staff at both institutions to ensure that both traditions were fairly and effectively represented. The new history is currently in the catalogue.

**Post-Consolidation Implementation (“Recommendations to Reality”):**

As Provost Fellow, I was tasked with overseeing those recommendations from the CIC that came under the purview of the Office of Academic Affairs—about 500 recommendations—and distributing approved CIC recommendation to the appropriate university offices and departments. Each month, I communicated with those offices, administrators, and individuals tasked with bringing those recommendations to reality (or, in approximately 10% of cases, deciding not to). My charge was to maintain momentum and facilitate progress on completion of the recommendations, bringing stakeholders together when necessary to encourage compromise and progress.

**Coordinator of English Education and Director of the Graduate Program in English:**

I was brought to Albany State University direct the graduate program in English Education and to create undergraduate and graduate certification programs in English Education. In the spring of 2013, the Georgia Professional Standards Commission approved our proposal with no “AFIs” (Areas for Improvement). In the fall of 2014, we received both state and national accreditation as part of our NCATE evaluation. I direct the graduate program, review and develop curriculum, attend and organize recruiting opportunities, and create partnerships with off-campus stakeholders (such as two-year colleges and local middle and high schools), among other duties.

**Faculty Governance (Faculty Senate/Executive Committee/Chair, Library Committee)**

I joined Faculty Senate my third year at ASU, chaired the University Library Committee for five years, and sat on the Executive Committee for four (one member from each college, tasked with organizing the agenda and activities of the faculty senate). In this time, I led the effort to increase the pay adjustment for achieving tenure and promotion and served. When the university archives were displaced new administrative offices, I led
the effort to create a new archive/workspace/display area for our valued resources (including original documents from The Albany Movement, an important part of the Civil Rights Movement).

Right-sizing:
After consolidation, and due to pre-existing enrollment declines at both institutions, ASU was instructed by the University System of Georgia to initiate a process of “right sizing” both the staff and faculty ranks. As provost fellow and on loan to the dean of Arts and Humanities, I reviewed faculty ranks within the college and created a list for presentation to the dean, the provost, and the USG. In compiling the list, I considered tenure status, seniority, content coverage within department curriculum, departmental accreditation needs, and other criteria. Subsequently, I worked with the provost to develop justifications for minimizing the scope of the list. The institution was able to act on a list just over half of what was originally requested. (Increases in enrollment the next year provided further evidence of college needs and obviated the need for most of the letters of non-renewal.)

Curriculum Revision for University and College:
During my term as Provost Fellow, I reviewed the size of major requirements for every major in the university and compared them to those of other Georgia institutions. I found that every major was above average—some drastically so. The negative impact on retention, progression, and graduation were obvious, and I researched methods of curriculum construction that allowed for rigorous requirements while encouraging students to completion more efficiently. The entire College of Business and several programs in the College of Science and Technology reviewed and streamlined their curriculum as a result. In Arts and Humanities, we streamlined Psychology, Sociology, English, History, Political Science, Mass Communications, and Visual Arts.

The Center for Faculty Excellence:
In what was originally intended to be my primary duty as provost fellow, I was tasked with updating our Center for Excellence in Teaching and Learning. I researched scores of examples and wrote a proposal that envisioned supporting faculty somewhat more broadly than is typical for CETLs—including more support for research and community engagement. After my proposal was accepted, the associate provost and I co-wrote a five-year grant of more than one million dollars to support the new center. I am proud that the “CPE” debuted the fall of 2017.

Policy Development
Post consolidation, the institution was technically and truly a “New ASU,” and many foundational policies had to be adopted to address our now more-complicated structure. I participated in the development of many policies. Most notably, I wrote the Chair Reappointment Policy and led the team that created a new Promotion and Tenure Policy that would accommodate “University Faculty” with a research focus as well as “College Faculty” whose primary duties were teaching and service.

Faculty/Staff Colloquia
As provost fellow, I created and led professional development sessions for university faculty and staff. The most successful series developed faculty conversations regarding the ideas presented in Fareed Zakaria’s 2015 book, *In Defense of a Liberal Education*.
SERVICE

National Service

• English Education Program Reviewer (and member), National Council of Teachers of English, 2010—present.

State Service

• ASU Representative to LEAP States Initiative Georgia, 2014—present.
• English Education Task Force (Georgia Professional Standards Commission), 2014.
  o Tasked with rewriting the standards for English Education programs.
  o I created and ran a wiki for the task force, dedicated to addressing each potential new standard before finalization.
• GaNTEP—Georgia Network for Transforming Educator Preparation, 2013—present.

Albany State University

University Service:

Leadership Roles:

• CIC (Consolidation Implementation Committee) for Albany State University/Darton State College Consolidation. 2016-2017.
• Chair, Tenure and Promotion Task Force. 2016-2017.
• Co-Chair, First Year Experience OWG (Operational Working Group) 2016.
• FAC (Functional Area Coordinator) Faculty Governance and Staff Governance OWGs. 2016-2017.
• Chair, Faculty Hearing Committee. 2015.
• Chair, Library Advisory Committee, 2011-2014.
• Executive Committee of Faculty Senate. 2013-2016.
• Chair, Strategic Priority Committee, Leveraging Faculty. 2014-2015.
• Secretary, Executive Committee of the Faculty Senate, 2011-2012.

Service Roles:

• Retention Committee. 2017—.
• Institutional Effectiveness Committee. 2017—.
• Faculty/Staff Conference Committee—.
• Dean’s Leadership Council. 2016—.
• Ad Hoc Program Location Committee (Consolidation and Campus Planning Responsibilities). 2016-2017.
• Common Reader Committee. 2017.
• Undergraduate Curriculum Committee. 2017—.
• Advisory Board, Department of Teacher Education, 2016-2017.
• Core Curriculum OWG. 2016.
• ASU Presidential Investiture Committee. 2016
• Curriculum and New Programs, 2016—.
• Consolidation SACS Assessment Team. 2016.
• Graduate Council, 2008-2011. 2015-current.
• Graduate Faculty Membership Committee. 2015—.
• Graduate Recruitment Committee. 2016.
• Bursar Search Committee, 2016.
• VP of Fiscal Affairs Search Committee. 2016.
• Director of Admissions, Search Committee. 2016.
• Faculty Senate, 2010-2017.
• ASU Core Values Committee. 2015.
• Signature Programs Committee. 2015.
• ASU Core Curriculum Assessment Team, 2012-2016.
• Retention Summit Planning Committee. 2014.
• ASU Recruitment Committee, 2009-2010.
• Internal Review team for the Middle Grade Education Program, August 2010.
• Search committee, Director of Global Programs, August 2010.
• Miss ASU Closed Interview Team, March 2010.

College Service:
• Faculty Evaluation Instrument Revision. 2015-2016.

Departmental Service
• Chair, Program Assessment Committee.
• Chair, SAC Assessment Committee.
• Chair, English Education Advisory Board.
• Secretary, Faculty Review Committee.
• Writing Committee.
• Recruitment Committee.
• Library Committee.
• Low-Producing Programs Committee. 2015.
• Program Development Committee.

Elizabethtown College

• Cultural Events Committee, Spring 2007—2008.
• Core Committee, Fall 2007—2008.
• Faculty Advisor, Fine Print, the student literary magazine, Fall 2004—2008.
• Education Philosophy Team, Fall 2006—2008.
• Dell Day Review Committee, Fall 2005—Spring 2006.
• Search Committee, Modern Language Education line, Fall 2005—Spring 2006.
• Elizabethtown Honors Program Committee, Spring 2004—Spring 2006.
• Search Committee for Director of the Library, Fall 2004—Spring 2005.

AWARDS and RECOGNITIONS

• Who's Who in America's Colleges (2005)
• Eisinger Research Fellowship—Purdue Research Foundation Two-Year Research Grant (2001)
• American Studies Research Travel Award (2000)
• Purdue University Literary Awards, Best Essay in Literary Criticism (2000)
• Purdue Research Foundation Summer Research Award (2000)
• Eisinger Prize for Best Essay in American Studies (1999)
• Eisinger Prize for Best Essay in American Studies (1998)
• Graduation with Honors, Ball State University Honors College (1985)
• Academic Honors in Writing, Ball State University (1985)
• Departmental Honors in Writing, Ball State University, English Department (1985)
• Ball State University—State Academic Scholarship (1985-89)

TEACHING

Albany State University

Evaluations: Summary of all collected teaching evaluations average over 3.5 on a 4.0 scale.

Supplementary Teaching
• Quality Matters certification in Online Instruction.
• Created the master course in English 1102: Freshman Composition II for the university, first in Blackboard and then in Moodle and D2L.
• Participation in ASU's QEP (Quality Enhancement Program) dedicated to integrating current technology into classroom pedagogy. Advocate of increasing pedagogical use of technology through service in department and on university committees.
• Developed new curriculum for seven courses in newly (2008) reinstituted Advanced Degree (non-certification) Master’s Program in English Education (including courses in American Romanticism, Realism, and Modernism, Adolescent Literature, Advanced Writing, and composition and literature pedagogy.
• Created new course, ENGL 5685 Grammar and Linguistics for Teachers.
• Directed Comprehensive Exam in English Education.

Elizabethtown College

IDEA Faculty Evaluation System Averages:
(Summaries are from 2004-2008. Numbers are listed as raw/adjusted)

<table>
<thead>
<tr>
<th>Progress</th>
<th>Exc. Teacher</th>
<th>Exc. Course</th>
<th>Summaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totals:</td>
<td>62.4/57.3</td>
<td>59.2/55.9</td>
<td>62.6/56.5</td>
</tr>
</tbody>
</table>

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Interpretive notes:

- All raw numbers and 6 of 12 adjusted numbers are in the IDEA “Higher” category. Five of those in the “Similar”—or middle—category are above 55, the top of that category.
- For English Education courses, 23 of 24 Raw numbers (covering progress, excellent teacher, and excellent course) are in the “Higher” category, and 15 of 24 adjusted numbers are in the “Higher” category.
- For Literature courses, 25 of 33 raw numbers are in the “Higher” category, and 18 of 33 adjusted numbers are in the “Higher” category.

Supplementary Teaching:

- Directed seven senior honors theses. Reader on three others.
- Five independent studies, and five directed studies.
- Directed thirty-three student teaching experiences, a process that has included biweekly visits, two formal evaluations of each student, and documentation both for Elizabethtown College and for the state of Pennsylvania.
- Created a new course, Honors English 243: American Visions. The course is an interdisciplinary, American Studies-style course in cultural history focusing, in half-semester sections, on the mid-19th century and the mid-20th century.
- Created a new EN 440 author seminar course on Mark Twain, taught Fall 2004.
MEMORANDUM

DATE: April 2, 2018

TO: George Ellenberg, Ph.D.,
    Provost and Executive Vice President
    Steve Brown, Ph.D.,
    Interim Dean, Usha Kundu MD College of Health

FROM: Ronald W. Belter, Ph.D., ABPP
      Interim Chairperson, Psychology Department

RE: Tenure Review for David Stohmetz, Ph.D., Incoming Department Chairperson

In early February, the faculty in the Psychology Department voted by secret ballot in a tenure review for the incoming department chairperson, Dr. David Strohmetz. Tenured faculty only were eligible, and all ten of them voted “yes” for the award of tenure.
DAVID B. STROHMETZ, Ph.D.

Department of Psychology
Monmouth University

PROFESSIONAL EXPERIENCE

MONMOUTH UNIVERSITY, West Long Branch, NJ (August 1996 – present)

Faculty Status
2010-present  Professor of Psychology (with tenure)
2002-2010  Associate Professor of Psychology (with tenure)
1996-2002  Assistant Professor of Psychology

Administrative Experience
2006-2013  Associate Vice President for Academic and Institutional Assessment
2010-2011  Inaugural class of the Senior Leadership Academy, co-sponsored by the Council of Independent Colleges and the American Academy Leadership Institute
2002-2006  Chair, Department of Psychology
2001-2002  Assistant Director of the Honors Program

Accreditation Experience
2014-2016  Co-chair, Monmouth University’s decennial self-study for Middle States Commission on Higher Education reaccreditation
2016  Small Team Chair, Middle States Commission on Higher Education
2009-2016  External evaluation team member, Middle States Commission on Higher Education
2010-2011  Co-chair, Monmouth University’s Periodic Review Report for Middle States Commission on Higher Education reaccreditation

Other Relevant Experiences
2017-2020  CUR Transformations Consultant as part of a NSF Grant awarded the Council for Undergraduate Research
2015-2016  University Strategic Planning Steering Committee
2006-2013  University Enrollment Planning Committee
2006-2013  University Retention Plan Implementation Team

SHENANDOAH UNIVERSITY, Winchester, VA

1992-1996  Assistant Professor of Psychology

EDUCATION
• Doctor of Philosophy in Social/Organizational Psychology, Temple University, Philadelphia, PA
• Master of Arts in Social/Organizational Psychology, Temple University, Philadelphia, PA
• Bachelor of Arts (Psychology), Dickinson College, Carlisle, PA

PUBLICATIONS: BOOK
PUBLICATIONS: PEER-REVIEWED SCHOLARLY ARTICLES


**PUBLICATIONS: BOOK CHAPTERS**


**GRANTS**


**TEACHING RESOURCES**


ADDITIONAL SCHOLARLY WORK


SCHOLARLY PRESENTATIONS: SYMPOSIUMS/PRESENTATIONS


**SCHOLARLY PRESENTATIONS: POSTERS** (*denotes undergraduate student*)


OTHER PROFESSIONAL ACTIVITIES

- Ad hoc reviewer, *Teaching of Psychology*
- Ad hoc reviewer, *Scholarship of Teaching and Learning in Psychology*

PROFESSIONAL AFFILIATIONS

- American Psychological Association
- Association for Psychological Science
- Council of Undergraduate Research
- Eastern Psychological Association
- Society of Personality and Social Psychology
- Society for the Teaching of Psychology
Action Item

UWF Board of Trustees Meeting
Academic Affairs Committee
May 24, 2018

Issue/Agenda Item: Request to Offer New Ph.D. Degree Program, Effective Fall 2019

Proposed Action: Approve Request

Background Information:

The University of West Florida (UWF) proposes to offer the following new Ph.D. degree program effective Fall 2019:

Doctor of Philosophy in Intelligent Systems and Robotics

Ph.D. in Intelligent Systems and Robotics

The Ph.D. in Intelligent Systems and Robotics degree program is a doctoral program consisting of 72 credit hours beyond the bachelor’s degree. This will be UWF’s first Ph.D. and Florida’s first program in CIP Code 11.0102, Artificial Intelligence. The program will be offered at the UWF main Pensacola campus and will be affiliated with the Institute for Human and Machine Cognition (IHMC).

The university has designed the Intelligent Systems and Robotics Ph.D. degree program to train the next generation of educators and researchers to develop technology combining human and machine elements. The goal is to have well-educated citizens who will work in diverse fields, strengthen UWF’s research and scholarly activities, and create regional economic impacts. The program will directly support the goal of increasing the number of advanced degrees from Florida universities awarded in a STEM discipline. Beyond coursework, the program’s cornerstone will be hands-on, leading-edge research in robotics and artificial intelligence and will leverage the proximity and talent of UWF faculty and IHMC scientists. The program presents students with an opportunity to interact with and learn from award winning scientists from IHMC. The program builds upon the existing strength of UWF’s computer science and engineering programs and adds IHMC researchers who will be involved in mentoring students, overseeing Ph.D. dissertations, and offering cutting-edge research opportunities.

Intelligent systems are technologically advanced machines that perceive and respond to the world around them. Intelligent systems take many forms including:

- brain-controlled prosthetic limbs that allow amputees to return to work;
- crawling robots that can find survivors buried in rubble at disaster scenes; and
- semi- and fully-autonomous vehicles transporting passengers and goods to their desired destination with little or no intervention.
The U.S. Bureau of Labor Statistics predicts that for the U.S. to retain its preeminence in science and technology it needs to produce over one million more STEM professionals over the next decade. The proposed Ph.D. degree program will serve a significant need in Florida and will prepare UWF graduates to be regional, state, and national leaders as well as innovators in this emergent field. Graduates from the degree program will work in a variety of high-tech industries such as advanced manufacturing, healthcare, defense, and transportation. Producing graduates with doctoral degrees in Intelligent Systems and Robotics will ensure that Florida trains and retains a workforce ideally suited to current and future challenges, and that UWF contributes to the state’s goal to prepare graduates to excel in a global society and marketplace.

Implementation Plan:

- The CAVP approved the Ph.D. in Intelligent Systems and Robotics degree on 09/11/2015
- The UWF Faculty Senate approved the curriculum on 04/13/2018
- The UWF Board of Trustees Academic Affairs Committee considers the Request to Offer New Degree Program May 2018
- The UWF Board of Trustees considers the Request to Offer New Degree Program June 2018
- Florida Board of Governors considers the Request to Offer New Degree Program November 2018
- Submission of SACSCOC Substantive Change Prospectus December 2018
- New degree program implemented Fall 2019

Fiscal Implications: Fiscal implications are reflected in the Request to Offer.

Supporting documents:

Request to Offer a New Degree Program – Ph.D. in Intelligent Systems and Robotics
http://pages.uwf.edu/aadocs/bot/RTO_PhD_ISandR.pdf

Facilitator/Presenter: Dr. Kimberly McCorkle
Interim Vice Provost
(850) 857-6198
KMcCorkle@uwf.edu
Board of Governors, State University System of Florida

Request to Offer a New Degree Program

(Please do not revise this proposal format without prior approval from Board staff)

University of West Florida

University Submitting Proposal

Hal Marcus College of Science and Engineering

Name of College(s) or School(s)

Artificial Intelligence and Robotics

Academic Specialty or Field

11.0102

Proposed CIP Code

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.

Date Approved by the University Board of Trustees

President

Date

Signature of Chair, Board of Trustees

Date

Provost and Senior Vice President

Date

Provide headcount (HC) and full-time equivalent (FTE) student estimates of majors for Years 1 through 5. HC and FTE estimates should be identical to those in Table 1 in Appendix A. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Table 2 in Appendix A. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 (Total E&G divided by FTE).

<table>
<thead>
<tr>
<th>Implementation Timeframe</th>
<th>Projected Enrollment (From Table 1)</th>
<th>Projected Program Costs (From Table 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HC</td>
<td>FTE</td>
</tr>
<tr>
<td>Year 1</td>
<td>7</td>
<td>3.85</td>
</tr>
<tr>
<td>Year 2</td>
<td>14</td>
<td>7.70</td>
</tr>
<tr>
<td>Year 3</td>
<td>21</td>
<td>11.55</td>
</tr>
<tr>
<td>Year 4</td>
<td>28</td>
<td>15.40</td>
</tr>
<tr>
<td>Year 5</td>
<td>35</td>
<td>19.25</td>
</tr>
</tbody>
</table>

Note: This outline and the questions pertaining to each section must be reproduced within the body of the proposal to ensure that all sections have been satisfactorily addressed. Tables 1 through 4 are to be included as Appendix A and not reproduced within the body of the proposals because this often causes errors in the automatic calculations.
I. Program Description and Relationship to System-Level Goals

A. Briefly describe within a few paragraphs the degree program under consideration, including (a) level; (b) emphases, including majors, concentrations, tracks, or specializations; (c) total number of credit hours; and (d) overall purpose, including examples of employment or education opportunities that may be available to program graduates.

(a) Doctor of Philosophy

(b) Intelligent Systems and Robotics

(c) 72 Semester Credit Hours beyond the bachelor’s degree

(d) The University of West Florida (UWF) seeks to offer a Doctor of Philosophy (Ph.D.) degree program in Intelligent Systems and Robotics in CIP Code 11.0102. The degree program will be housed in the Department of Intelligent Systems and Robotics within the Hal Marcus College of Science and Engineering. The proposed degree program in CIP Code 11.0102 will be the first of its kind in the state of Florida. The proposed program comprised of 72 semester credit hours (SCH) beyond the bachelor’s degree will be an affiliation between UWF and the Florida Institute for Human and Machine Cognition (IHMC). IHMC, located at 40 South Alcaniz Street, Pensacola, Florida is a not-for-profit research institute established by the Florida Legislature in 2004 (Florida Statute 1004.447).

The university has designed the Intelligent Systems and Robotics Ph.D. degree program to train the next generation of educators and researchers to develop technology combining human and machine elements. The goal is to have well-educated citizens who will work in diverse fields, strengthen UWF’s research and scholarly activities, and create regional economic impacts. Beyond coursework, the program’s cornerstone will be hands-on, leading-edge research in intelligent systems and robotics and will leverage the proximity and talent of UWF faculty and IHMC Researchers. Graduates from the degree program will work in a variety of high-tech industries such as advanced manufacturing, healthcare, defense, and transportation.

UWF is uniquely poised to execute and deliver this Ph.D. degree program, the first of its kind in Florida. Because of the close working relationship and physical proximity with IHMC, students and faculty will be able to leverage the infrastructure and expertise of this world-class institution.

Educating students in the subject of intelligent systems and robotics aligns with the Florida Board of Governors’ 2025 Strategic Plan to have “well-educated citizens who are working in diverse fields, from science and engineering to medicine and bioscience to computer science, the arts and so much more.”

B. Please provide the date when the pre-proposal was presented to CAVP (Council of Academic Vice Presidents) Academic Program Coordination review group. Identify any concerns that the CAVP review group raised with the pre-proposed program and provide a brief narrative explaining how each of these concerns has been or is being addressed.

During the September 11, 2015, conference call there were no concerns raised by the CAVP.
C. If this is a doctoral level program please include the external consultant’s report at the end of the proposal as Appendix D. Please provide a few highlights from the report and describe ways in which the report affected the approval process at the university.

For development of this program, UWF engaged Dr. Ronald Arkin, Regents’ Professor and Director of Mobile Robot Laboratory, College of Computing, Georgia Institute of Technology (Full Report in Appendix D). Highlights from Dr. Arkin’s report (in italics) and the university’s responses are as follows:

Reach a written accord between UWF and IHMC as soon as possible and formalize it with a MOU.

The Dean of the Hal Marcus College of Science and Engineering and the interim program director have been working with representatives of IHMC to develop an Affiliation Agreement. The Affiliation Agreement outlines the roles of the institutions regarding the Ph.D. degree program in Intelligent Systems and Robotics to include but not limited to items such as the use of facilities, term of the agreement, and roles of the parties. The leadership of UWF and IHMC as well as the respective general counsels for both organizations reviewed the Affiliation Agreement prior to execution. The signed Affiliation Agreement can be found in Appendix E.

Convene a search and the hire senior leadership in Intelligent Systems as soon as possible.

Dr. Mohamed Khabou, professor and chair of the UWF Department of Electrical and Computer Engineering is serving as the interim program director to continue development of the degree program, initiate student recruitment, complete faculty searches, and more. He has been working with the faculty in the departments of Engineering and Computer Science to develop the program of study and curriculum and determine program admission and graduation requirements. The HMCSE will initiate a search in fall, 2018 for a permanent program director scheduled to begin fall, 2019.

Start hammering out the specific details of the structure of the program, as these will delineate the responsibilities required.

The curriculum for the Ph.D. was reviewed and approved through all stages of the internal UWF Curriculum Coordination Review process. This process includes but is not limited to review by HMCSE College Council, Graduate Council, Academic Council, Office of the Registrar, and the Faculty Senate. The UWF Faculty Senate approved the full program on April 13, 2018.

Expand the program to be available in other units, particularly ECE, not only CS.

The program development includes the creation of a separate, interdisciplinary Department of Intelligent Systems and Robotics. Program students will utilize expertise from a variety of UWF departments, including Mechanical Engineering, Computer Science, Electrical and Computer Engineering, and Mathematics and Statistics.

Do not require an M.S. for admissions to the program. Do not create courses on specialized topics solely for Ph.D. students. Ensure that MS students can enroll and receive credit towards their degree.
UWF faculty developed admission standards and a curriculum that allows the program to admit a select body of highly qualified students at the post baccalaureate and post master’s degree levels. The program of study developed outlines clear requirements and path to completion for students admitted to the degree program with a master’s degree and those highly qualified students admitted to the degree program without a master’s degree. The UWF Faculty Senate approved the admission standards and program of study on April 13, 2018.

D. Describe how the proposed program is consistent with the current State University System (SUS) Strategic Planning Goals. Identify which specific goals the program will directly support and which goals the program will indirectly support (see link to the SUS Strategic Plan on the resource page for new program proposal).

The Ph.D. in Intelligent Systems degree program aligns with the Florida Board of Governor’s Strategic Priorities and Goals for 2012-2025:

Teaching and Learning

The program will directly support the goal of increasing the number of advanced degrees from Florida universities awarded in a STEM discipline. UWF’s first Ph.D. degree program, Intelligent Systems and Robotics, presents students with an opportunity to interact with and learn from award winning scientists from IHMC. The program builds upon the existing strength of UWF’s computer science and engineering programs and adds IHMC Researchers all of whom will be involved in mentoring students, overseeing Ph.D. dissertations, and bringing about cutting-edge research opportunities.

Scholarship, Research and Innovation

UWF’s Intelligent Systems and Robotics degree program will strengthen the quality and reputation of scholarship, research, and innovation in the state. This degree program will be Florida’s first doctoral program in the field of intelligent systems and robotics. The collaborative approach with IHMC will enhance research productivity. With a strong research emphasis focusing on technologies in which innovation can be transformative, the proposed Ph.D. degree program will attract student scholars and researchers and enhance Florida’s reputation for scholarship, research, and innovation. Graduates of this program will find work in this highly innovative field thereby increasing the state and region’s commercialization activity. In the 2016-2024 time frame, the United States (U.S.) Bureau of Labor Statistics Occupational Outlook Handbook projects 19% growth for Computer and Information Technology Research Scientists (http://www.bls.gov/ooh/computer-and-information-technology/computer-and-information-research-scientists.htm).

Community and Business Engagement

Both UWF and IHMC are engaged in vibrant community and business engagement activities, especially with kindergarten through high school students. Examples of community and business engagement activities that promote STEM education and recruit the next generation of STEM scientists and entrepreneurs include IHMC’s Science Saturday Program, UWF’s involvement with Science Olympiad, IEEE SoutheastCon Hardware competition, and BEST Robotics, and hosting of regular community seminar events by both.
E. If the program is to be included in a category within the Programs of Strategic Emphasis as described in the SUS Strategic Plan, please indicate the category and the justification for inclusion.

Please see the Programs of Strategic Emphasis (PSE) methodology for additional explanations on program inclusion criteria at the resource page for new program proposal.

The proposed program fits in the current Programs of Strategic Emphasis category Science, Technology, Engineering, and Math (STEM). Within that category, CIP code 11 lists as follows:

11 Computer and Information Sciences and Support Services (all)

The CIP code for the proposed degree program is 11.0102, Artificial Intelligence.

F. Identify any established or planned educational sites at which the program is expected to be offered and indicate whether it will be offered only at sites other than the main campus.

The academic program will be offered at UWF’s main Pensacola campus and will be affiliated with IHMC located at 40 South Alcaniz Street Pensacola, Florida (Florida Statute 1004.447 (6) (b)). There are no plans for offering the program at any other sites.

INSTITUTIONAL AND STATE LEVEL ACCOUNTABILITY

II. Need and Demand

A. Need: Describe national, state, and/or local data that support the need for more people to be prepared in this program at this level. Reference national, state, and/or local plans or reports that support the need for this program and requests for the proposed program which have emanated from a perceived need by agencies or industries in your service area. Cite any specific need for research and service that the program would fulfill.

The U.S. Bureau of Labor Statistics predicts that in order for the U.S. to retain its preeminence in science and technology, it needs to produce over one million more STEM professionals over the next decade. (http://www.bls.gov/opub/mlr/2015/article/stem-crisis-or-stem-surplus-yes-and-yes.htm).

The proposed degree program will serve a significant need in Florida and will prepare UWF graduates to be regional, state, and national leaders as well as innovators in this emergent field. Producing graduates with doctoral degrees in Intelligent Systems and Robotics will ensure that Florida trains and retains a workforce ideally suited to current and future challenges. Graduates of the degree program will provide leadership, expertise, and innovation for Florida to progress to the forefront of these advances.

Intelligent systems are technologically advanced machines that perceive and respond to the world around them. Intelligent systems take many forms including:

- brain-controlled prosthetic limbs that allow amputees to return to work,
- crawling robots that can find survivors buried in rubble at disaster scenes, and
- semi- and fully-autonomous vehicles transporting passengers and goods to their desired destination with little or no intervention.

- Robotics technology holds the potential to transform the future of the country and is expected to become as ubiquitous over the next decades as computer technology is today.
- Through adoption of robots in flexible manufacturing, it is possible to generate production systems that are economically competitive to outsourcing to other countries with lower wages.
- A key driver in adopting robotics technology is the aging population that results in an aging workforce but it also poses a number of challenges to the healthcare system.
- Robotics technology has advanced sufficiently to allow for “human augmented” labor that enables acting on the vision of co-workers who assist people with dirty, dull, and dangerous tasks, and it facilitates a new generation of systems for domestic support to improve quality of life for the broader population. In addition, robots have already proven their value in removing first-responders and soldiers from immediate danger.
- Robotics technology offers a unique opportunity to invest in an area that has a real potential for new jobs, increased productivity, and to add to worker safety in the short-term. It will allow an acceleration of inshoring of jobs, and longer-term, will offer improved quality of life in a society that is expected to experience significant aging.
- Each of the areas covered by the roadmap identifies both near- and long-term applications of robotics technology, establishing 5-, 10-, and 15-year goals for critical capabilities required to provide such applications, and identifies the underlying technologies needed to enable these critical capabilities.
- While some critical capabilities and underlying technologies are domain-specific, the systems effort identified a number of critical capabilities that are common across the board, including robust 3-D perception, planning and navigation, human-like dexterous manipulation, intuitive human-robot interaction, and safe robot behavior.

National:

Across the country, employers seeking to remain competitive pursue graduates with this cutting-edge knowledge to help move their business forward. Universities struggle to find high quality, research faculty to meet the teaching and research needs of this rapidly growing field. An example of worldwide demand is demonstrated by the International Federation of Robotics report that predicts international robotics sales will increase five-fold by 2018 to 2,300,000 units (https://ifr.org/ifr-press-releases/news/ifr-forecast-1.7-million-new-robots-to-transform-the-worlds-factories-by-20). (See Appendix J for full-text article)

As intelligent systems and robotics is an emergent and multi-disciplinary field, the closest occupations with data are Computer and Information Research Scientists (15-1111), Computer Hardware Engineers (17-2061), and Mechanical Engineers (17-2141). All of these occupations command high salaries and have better than average growth potential as is shown in Table 1 below.

Table 1. *U.S. Ph.D. Job projections in closely related fields.*

<table>
<thead>
<tr>
<th>Job Projections for Ph.D. Graduates in Intelligent Systems and Robotics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>United States</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Computer and Information Research Scientists</td>
</tr>
<tr>
<td>Computer Hardware Engineers</td>
</tr>
<tr>
<td>Mechanical Engineers</td>
</tr>
</tbody>
</table>


In addition, a search for Computer and Research professional job openings on the Computer Research Association site ([https://cra.org/ads/](https://cra.org/ads/) internet accessed 04/25/2018) found 42 positions advertised domestically in the professional and post-doctoral categories at two months old or less.

**State:**

Graduates of the Intelligent Systems and Robotics degree program will be competitive in filling employment needs in a number of qualified target industries in the State of Florida Job Creation Plan - Aviation/Aerospace, Homeland Security/Defense, and Infotech. Job growth for the field of Computer and Information Research Scientists and the related engineering fields is projected to rise through 2024 as shown in Table 2 below. Demand for Computer and Information Research Scientists will increase 4.5% with an overall increase in new jobs through 2024.

Table 2. *Florida Ph.D. Job projections in closely related fields.*

<table>
<thead>
<tr>
<th>Job Projections for Ph.D. Graduates in Intelligent Systems and Robotics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Florida</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Computer and Information Research Scientists</td>
</tr>
<tr>
<td>Computer Hardware Engineers</td>
</tr>
<tr>
<td>Mechanical Engineers</td>
</tr>
</tbody>
</table>

Source: [www.floridajobs.org](http://www.floridajobs.org)

The Ph.D. in Intelligent Systems and Robotics is a new degree program and no SUS graduate income data is available for this CIP code 11.0102. However, graduate wage data is available
under the related CIP code of 11.0101. As shown in Table 3 below, the full-time average quarterly earnings for doctoral graduates in this field range from $12,908 to $37,500 according to a report published by the Florida Department of Education. These reported quarterly earnings equate to annual salaries ranging from $51,632 to $150,000.

Table 3. Quarterly and annual earnings in closely related field (CIP 11.0101) for doctoral level graduates (research & professional).

| CIP 11.0101 - Doctorate in Computer & Information Science for 2015-2016 |
|-------------------------------------------------|-----------------|-----------------|
| Graduates                                      | Full Time Average Quarterly Earnings | Annual Earnings* |
| Florida Atlantic University                    | $19,584         | $78,336         |
| Florida International University               | $12,908         | $51,632         |
| Florida State University                       | $25,785         | $103,140       |
| University of Central Florida                  | $37,500         | $150,000       |
| University of Florida                          | $24,957         | $99,828        |

*Calculated field

A strong program in intelligent systems and robotics serving advanced manufacturing, healthcare, defense, and other high-tech industries will provide significant economic benefit to the state. There is substantial grant funding potential for this degree program. One example is the National Robotics Initiative, led by the National Science Foundation and jointly sponsored by National Aeronautics and Space Administration, Department of Defense, Department of Energy, United States Department of Agriculture, and National Institutes of Health.

In the two-year period 2014-2016, the National Robotics Initiative awarded almost $150,000,000 in grants in years 2014-2016. Among the 30 states receiving awards, Florida ranked number 18, in the lower half. Florida’s grant funding from the National Robotics Initiative was $2,094,253 distributed among five recipients. Pennsylvania ranked first with 31 grants totaling $22,033,789, ten times more than Florida. Georgia received 13 grants totaling $7,260,910, more than three times more than Florida. ([https://www.nsf.gov/awards/award_visualization.jsp?org=NSF&pims_id=503641&ProgEleCode=8013&from=fund](https://www.nsf.gov/awards/award_visualization.jsp?org=NSF&pims_id=503641&ProgEleCode=8013&from=fund)).

Local:

Northwest Florida is home to a critical mass of national defense installations within a two-hour commute of UWF:

- Eglin Air Force Base,
- Naval Air Station Pensacola,
- Hurlburt Field,
- Naval Air Station Whiting Field,
- Tyndall Air Force Base
In a cascade effect, the regional economy supports the defense industry. Table 4 below is a small sample of local organizations that would benefit from the highly skilled labor pool that this degree program will produce.

Table 4. Sample of local organizations that would benefit from UWF’s Intelligent Systems and Robotics degree program.

<table>
<thead>
<tr>
<th>Aviation/Aerospace</th>
<th>Homeland Security Defense</th>
<th>Information Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT Mae</td>
<td>Information Warfare Training</td>
<td>Avalex</td>
</tr>
<tr>
<td></td>
<td>Command Center Corry Station</td>
<td></td>
</tr>
<tr>
<td>Airbus</td>
<td>Torch Technologies</td>
<td>Torch Technologies</td>
</tr>
<tr>
<td>Lockheed Martin</td>
<td>Lockheed Martin</td>
<td>L3 Technologies</td>
</tr>
<tr>
<td>Boeing</td>
<td>Applied Research Associates</td>
<td>General Dynamics IT</td>
</tr>
<tr>
<td>UTC Aerospace Systems</td>
<td>Ingalls Shipbuilding</td>
<td>TEKsystems</td>
</tr>
</tbody>
</table>


During the first year of the Intelligent Systems and Robotics degree program, the director and IHMC will form a local industry advisory council to provide guidance and insight on a variety of topics in the Ph.D. program. The overall goal of the industry advisory will be to provide a direct link between local and regional industries with the program.

B. Demand: Describe data that support the assumption that students will enroll in the proposed program. Include descriptions of surveys or other communications with prospective students.

There are currently three universities in the United States that offer a Ph.D. in artificial intelligence: Carnegie Mellon University in Pennsylvania, Georgia Institute of Technology in Georgia, and the University of Pittsburgh in Pennsylvania. The Ph.D. in Intelligent Systems and Robotics proposed by UWF would be the fourth doctoral-level degree program in the country in this field of study.

Because of high national demand for graduates with a Ph.D. in this field and the small number of doctoral level programs available, UWF anticipates students from other states as well as other countries to apply to the Intelligent Systems and Robotics Ph.D. degree program (See Appendix A Table 1-B). An additional area of prospective candidates for the Intelligent Systems and Robotics degree program will come from IHMC, which consistently attracts master's level research associates from around the world.

UWF expects some interest to come from high-performing graduates of undergraduate programs offered in the HMCSE. The university has a strong undergraduate Electrical and Computer Engineering degree program and in fall 2016, launched a B.S. in Mechanical Engineering degree program. UWF has an Artificial Intelligence and Robotics lab and an Unmanned Systems Lab with active undergraduate research programs. Recently, a student team competed in the IEEE SoutheastCon hardware competition and won second place with an autonomous robot that was only seconds slower than the winning team from University of Alabama. Table 5 below displays the five-year degree productivity for the UWF departments that are closely associated with the proposed degree program.

<table>
<thead>
<tr>
<th>Level</th>
<th>Department</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>5 Year Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>Computer Science</td>
<td>57</td>
<td>69</td>
<td>77</td>
<td>77</td>
<td>82</td>
<td>362</td>
</tr>
<tr>
<td></td>
<td>Electrical &amp; Computer Engineering</td>
<td>50</td>
<td>57</td>
<td>67</td>
<td>53</td>
<td>74</td>
<td>301</td>
</tr>
<tr>
<td></td>
<td>Information Technology*</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering*</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>Graduate</td>
<td>Computer Science</td>
<td>50</td>
<td>46</td>
<td>42</td>
<td>30</td>
<td>23</td>
<td>191</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>157</td>
<td>172</td>
<td>186</td>
<td>160</td>
<td>179</td>
<td>854</td>
</tr>
</tbody>
</table>

*New programs in 2016

The graduates depicted in Table 5 reflect a pool of potential applicants as well. In spring 2018, the HCMSE surveyed students currently enrolled in degree programs in the Departments of Electrical and Computer Engineering, Mechanical Engineering, and Computer Science to determine their potential interest in a Ph.D. in Intelligent Systems and Robotics. Of the 149 respondents, 98 students or 65.8% responded with “yes” he or she would be interested in a Ph.D. in Intelligent Systems and Robotics. Considering current national demand for this highly advanced skillset, the limited number of Ph.D. degree programs in this field, and future potential demand from current UWF students in closely related fields, UWF asserts that there is sufficient demand for this Ph.D. degree program in Intelligent Systems and Robotics and projects growth over a five-year period.

C. If substantially similar programs (generally at the four-digit CIP Code or 60 percent similar in core courses), either private or public exist in the state, identify the institution(s) and geographic location(s). Summarize the outcome(s) of communication with such programs with regard to the potential impact on their enrollment and opportunities for possible collaboration (instruction and research). In Appendix C, provide data that support the need for an additional program.

The Ph.D. in Intelligent Systems and Robotics will be the first Ph.D. degree program within the state of Florida with CIP code 11.0102, Artificial Intelligence. Among the SUS institutions in Florida, there are five universities with doctoral degree programs in Computer Science CIP 11.0101. Table 6 below reflects the name and location of these institutions.
Table 6. Florida Institutions that Offer a Ph.D. in a similar program with CIP 11.0101.

<table>
<thead>
<tr>
<th>Institution Name</th>
<th>Public/Private</th>
<th>Location</th>
<th>Program Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida Atlantic University</td>
<td>Public</td>
<td>Boca Raton</td>
<td>Ph.D. in Computer Science</td>
</tr>
<tr>
<td>Florida International University</td>
<td>Public</td>
<td>Miami</td>
<td>Ph.D. in Computer Science</td>
</tr>
<tr>
<td>Florida State University</td>
<td>Public</td>
<td>Tallahassee</td>
<td>Ph.D. in Computer Science</td>
</tr>
<tr>
<td>University of Central Florida</td>
<td>Public</td>
<td>Orlando</td>
<td>Ph.D. in Computer Science</td>
</tr>
<tr>
<td>University of Florida</td>
<td>Public</td>
<td>Gainesville</td>
<td>Ph.D. in Computer Science</td>
</tr>
</tbody>
</table>

Prior to submission of this proposal, UWF’s Interim Dean of the Hal Marcus College of Science and Engineering reached out to the other SUS institutions offering doctoral programs that may have some similarities. None of the respondents expected UWF’s Ph.D. in Intelligent Systems and Robotics to impact their programs. In fact, UCF’s chair said, “I applaud your initiative in creating this program, as there is a great demand from industry (and academia) for Ph.D.s in these fields.”

UWF projects admissions to the program of 7-8 students annually for a projected enrollment of 35 doctoral students by year 5. Based on national and state need for graduates in this field, SUS graduate enrollment data shown in Table 7, and doctoral degrees awarded by SUS institutions in CIP 11.0101 shown in Table 8, UWF believes there to be sufficient demand for this degree program, and does not predict any negative impact on the SUS institutional enrollment or degree production.

Table 7. All graduate levels program enrollment numbers at SUS institutions.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FAU</td>
<td>109</td>
<td>83</td>
<td>75</td>
<td>109</td>
<td>106</td>
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<tr>
<td>FIU</td>
<td>131</td>
<td>129</td>
<td>133</td>
<td>135</td>
<td>117</td>
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<tr>
<td>FSU</td>
<td>163</td>
<td>166</td>
<td>142</td>
<td>153</td>
<td>164</td>
</tr>
<tr>
<td>UCF</td>
<td>179</td>
<td>215</td>
<td>238</td>
<td>253</td>
<td>285</td>
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<tr>
<td>UF</td>
<td>105</td>
<td>216</td>
<td>346</td>
<td>695</td>
<td>582</td>
</tr>
<tr>
<td>Total</td>
<td>687</td>
<td>809</td>
<td>934</td>
<td>1,345</td>
<td>1,254</td>
</tr>
</tbody>
</table>

Source: flbog.edu/resources/iud/enrollment_results.php

Table 8. Doctoral degrees awarded by SUS institutions.

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>FAU</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>FIU</td>
<td>5</td>
<td>8</td>
<td>11</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>FSU</td>
<td>7</td>
<td>8</td>
<td>7</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>UCF</td>
<td>16</td>
<td>11</td>
<td>6</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>UF</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>29</td>
<td>27</td>
<td>39</td>
<td>34</td>
</tr>
</tbody>
</table>

Source: flbog.edu/resources/iud/degrees_results.php
While UWF has not currently developed any formal collaboration agreements with other SUS institutions for the Ph.D. degree program, IHMC currently has active affiliation agreements with several SUS institutions. UWF is open to the idea of collaboration opportunities with similar programs in the area of intelligent systems and robotics where beneficial to all parties. (See Appendix C for Summary of Similar Programs)

D. Use Table 1 in Appendix A (1-A for undergraduate and 1-B for graduate) to categorize projected student headcount (HC) and Full Time Equivalents (FTE) according to primary sources. Generally undergraduate FTE will be calculated as 30 credit hours per year and graduate FTE will be calculated as 24 credit hours per year. Describe the rationale underlying enrollment projections. If students within the institution are expected to change majors to enroll in the proposed program at its inception, describe the shifts from disciplines that will likely occur.

This program will be the first Ph.D. program at UWF and its first doctoral level program in STEM, therefore students are not expected to transfer into this program. UWF and the Hal Marcus College of Science and Engineering anticipate increased enrollment in its undergraduate programs as a result of implementing this new Ph.D. program.

The university does expect some applicants from other Florida universities who will be interested in the Intelligent Systems and Robotics degree program. As the degree program will limit acceptance to a cohort of 7-8 students per year for a projected year 1 FTE of 3.85, UWF does not anticipate a noticeable impact on SUS enrollment in similar programs. Due to the affiliation with IHMC and their history of global recruitment for both researchers and students, UWF anticipates being able to recruit nationally and internationally to attract the highest quality students into the program. Table 1-B in Appendix A shows seven new students per year resulting in a total enrollment of 35 students for a projected FTE of 19.25 by Year 5.

E. Indicate what steps will be taken to achieve a diverse student body in this program. If the proposed program substantially duplicates a program at FAMU or FIU, provide, (in consultation with the affected university), an analysis of how the program might have an impact upon that university’s ability to attract students of races different from that which is predominant on their campus in the subject program. The university’s Equal Opportunity Officer shall review this section of the proposal and then sign and date Appendix B to indicate that the analysis required by this subsection has been completed.

Neither FAMU nor FIU have expressed concerns about any potential impact the Ph.D. in Intelligent Systems and Robotics may at their institutions.

At this time, neither FAMU nor FIU offers Ph.D. programs in Intelligent Systems and Robotics. FAMU has Ph.D. programs in Electrical, Mechanical, and Computer Engineering. Students in those programs take courses in robotics through the Center for Intelligent Systems, Control, and Robotics (CISCOR), but artificial intelligence is not the focus of the program. FIU has some individual courses in Intelligent Systems including EEL 6267 "Application of Intelligent Systems to Power System Operations," but no program with the same emphases as the one proposed at UWF.

Consistent with its mission, UWF has admissions policies that balance attention to access, inclusiveness, and quality. In addition, UWF encourages applications from qualified persons and does not discriminate on the basis of age, color, disability, gender (including gender identity and sex), marital status, national origin, race, religion, sexual orientation, or veteran status. Also,
UWF's New Academic Program Approval Policy requires that programs appropriately address diversity. Therefore, the university and its degree programs take proactive measures to achieve a diverse student body. Recruitment efforts extend to many geographic regions to attract prospective students.

The proposed Ph.D. in Intelligent Systems and Robotics degree program will be marketed to multiple student segments: students from agencies and industries in UWF's service area, students from other UWF programs, students from other institutions, and students from other countries. Program faculty and staff will use multiple outreach methods to ensure diversity in the program. The faculty have and will continue to showcase UWF’s Ph.D. in Intelligent Systems and Robotics degree program and discuss coursework and career goals with all interested applicants. The Hal Marcus College of Science and Engineering will implement a comprehensive marketing campaign to promote the proposed degree program to the aforementioned student segments.

The Hal Marcus College of Science and Engineering currently attracts a diverse student body to its programs, and program coordinators anticipate a continued diversity of students in the new degree program (Figure 1).

![Figure 1. Five-year comparison of diversity in UWF’s current Computer Science, Computer Engineering, and Electrical Engineering degree programs](image)

III. Budget

A. Use Table 2 in Appendix A to display projected costs and associated funding sources for Year 1 and Year 5 of program operation. Use Table 3 in Appendix A to show how existing Education & General funds will be shifted to support the new program in Year 1. In narrative form, summarize the contents of both tables, identifying the source of both current and new resources to be devoted to the proposed program. (Data for Year 1 and Year 5 reflect snapshots in time rather than cumulative costs.)

Expected expenses for Year 1 of the program are $314,020, all of which will come from E&G. For faculty salaries and benefits, a Year 1 budget allocation of $229,772 is for the program
director and one additional new faculty hire. The funds for the two new faculty lines in Year 1 and two additional faculty lines by Year 5 will come from the funds provided by the Florida Legislature’s World Class Faculty and Scholar Program (2018 Florida Statute Title XLVIII Chapter 1004.6497).

The portion of existing UWF faculty salaries at $45,248 will be reallocated from the departments of Computer Science and Engineering. HCMSE will also reallocate a portion of existing staff of $14,000 in Year 1 to assist in programmatic duties for the Ph.D. degree program.

Due to initial enrollment of 7-8 students and the requirement of core and foundational courses, UWF anticipates that all teaching duties and research supervision of doctoral students will be handled by UWF faculty in Year 1. At this time, there is no projected need for OPS expenses in Year 1. Should the need arise for involvement of IHMC Researchers with doctoral student research in Year 1, these services will be paid with a portion of the Hal Marcus endowment to UWF for College of Science and Engineering to the extent these activities qualify as high impact and/or other UWF foundation funds which are currently available to enhance academic programming. The program has allocated $125,000 for graduate assistantships also to be paid from Hal Marcus College of Science and Engineering endowment funds in Year 1.

UWF estimates that the new program will incur $25,000 in expenses in Year 1 to be allocated to E&G. Although this is a new program, after consultation with the Dean of UWF Libraries, the existing collection of journals, electronic databases, and other library holdings are sufficient to implement and sustain this program through Year 5. There is no additional library allocation for this program for Year 1 or Year 5.

In Year 5, Table 2 shows a total Continuing Base for faculty salaries of $582,903, which includes $229,772 (salary and benefits) for two new faculty lines (funded by 2018 Florida Statute Title XLVIII Chapter 1004.6497) added in years two and three of the program. The staff member cost is shown in A&P Salaries & Benefits in Year 5 at $17,017 to account for salary increases and the increased cost of benefits at a rate of 5% per year.

Due to the intensive nature of the research between faculty and Ph.D. students and to support projected enrollment growth, UWF will leverage IHMC Researchers to serve as adjuncts, research mentors, and dissertation committee members for students in the program with an OPS cost of $371,250 in Year 5. Assistantships & Fellowships are estimated at $500,000 in Year 5 to support more students due to enrollment growth. UWF will utilize Hal Marcus College of Science and Engineering endowment funds as well as other UWF foundation funds currently available to fund both the OPS expense and Assistantships & Fellowships. Grant funds are anticipated and will be pursued to reduce E&G costs to the university and foundation funds.

Further estimated degree program expenses are $50,000 in Year 5 and will be allocated to E&G.

The projected Year 1 E&G Cost per FTE is projected to be $81,564, higher than the SUS average of $22,872. This is due to startup costs of hiring two new faculty and low overall degree program enrollment of a new Ph.D. program in Year 1.

By Year 5, the E&G Cost per FTE is projected to be $33,762, still higher than the SUS average of $22,872. This is due primarily to four new faculty lines dedicated to the Ph.D. degree program. It should be noted that the university plans to utilize the World Class Faculty and
Scholars Program (funded by 2018 Florida Statute Title XLVII Chapter 1004.6497) for this purpose.

UWF expects the benefits of this degree program to the university, region, and state to be significant in terms of advancing research, reputation, and grant opportunities for the university and the Ph.D. degree program. Faculty at UWF and IHMC Researchers will actively pursue grants and external funding. For the purpose of this proposal, only Hal Marcus College of Science and Engineering endowment funds and other UWF foundation funds which are currently available have been applied.

B. Please explain whether the university intends to operate the program through continuing education, seek approval for market tuition rate, or establish a differentiated graduate-level tuition. Provide a rationale for doing so and a timeline for seeking Board of Governors’ approval, if appropriate. Please include the expected rate of tuition that the university plans to charge for this program and use this amount when calculating cost entries in Table 2.

The University will not offer the program on a cost-recovery basis, nor will it seek approval for market tuition rate.

C. If other programs will be impacted by a reallocation of resources for the proposed program, identify the impacted programs and provide a justification for reallocating resources. Specifically address the potential negative impacts that implementation of the proposed program will have on related undergraduate programs (i.e., shift in faculty effort, reallocation of instructional resources, reduced enrollment rates, greater use of adjunct faculty and teaching assistants). Explain what steps will be taken to mitigate any such impacts. Also, discuss the potential positive impacts that the proposed program might have on related undergraduate programs (i.e., increased undergraduate research opportunities, improved quality of instruction associated with cutting-edge research, improved labs and library resources).

The proposed Ph.D. degree program will have no negative impacts on existing UWF programs. There are no competing doctoral programs from which the proposed program might draw resources nor students. The other doctoral level degree program at UWF is an Ed.D. in an unrelated field of study. The faculty and Dean of the Hal Marcus College of Science and Engineering anticipate that the program will have positive impacts on enrollments in the related undergraduate and master's degree programs in computer science, cognitive psychology, engineering, biomedical science, and other related science disciplines.

D. Describe other potential impacts on related programs or departments (e.g., increased need for general education or common prerequisite courses, or increased need for required or elective courses outside of the proposed major).

As a doctoral level program, the Ph.D. in Intelligent Systems and Robotics will have no impact upon general education or common prerequisite courses.

E. Describe what steps have been taken to obtain information regarding resources (financial and in-kind) available outside the institution (businesses, industrial organizations, governmental entities, etc.). Describe the external resources that appear to be available to support the proposed program.
UWF has designed the new degree program specifically to affiliate with IHMC in order to maximize the benefit of their existing facilities, research, grant funding, and scientists.

IV. Projected Benefit of the Program to the University, Local Community, and State

Use information from Tables 1 and 2 in Appendix A, and the supporting narrative for “Need and Demand” to prepare a concise statement that describes the projected benefit to the university, local community, and the state if the program is implemented. The projected benefits can be both quantitative and qualitative in nature, but there needs to be a clear distinction made between the two in the narrative.

Nationally, only three universities offer a specific Ph.D. program in Intelligent Systems and Robotics. UWF’s degree program in Intelligent Systems and Robotics will attract talented students from around the world to Florida and will draw from, and bolster UWF’s existing baccalaureate and master’s degree programs in engineering and computer science. The Intelligent Systems and Robotics degree program will provide opportunities for the university to achieve national distinction through the production of high quality doctoral graduates. In turn, UWF will be providing critical support to in-demand high technology career fields from medical device development to remote exploration to industrial robotics.

The creation of the proposed Ph.D. in Intelligent Systems and Robotics degree program will have clear benefits to the university. Specifically, it will achieve the following:

- Complement the existing Electrical and Computer Engineering and Computer Science programs and strengthen some aspects within their curricula (e.g., robotics, unmanned systems, etc.).
- Provide more research and collaboration opportunities within the university and with outside entities through the affiliation with IHMC.

The proposed program will also have clear benefits to the local community and state:

- The program matches a national demand for graduates in intelligent systems and robotics with the existing Northwest Florida hub for advanced manufacturing and military bases.
- Graduates with a Ph.D. in Information Science earn a median annual salary of $96,587 (source: Florida Dept of Education).
- The program will enhance the local economy by helping engender more high-tech industry and well-paying jobs in Northwest Florida.

V. Access and Articulation – Bachelor’s Degrees Only

A. If the total number of credit hours to earn a degree exceeds 120, provide a justification for an exception to the policy of a 120 maximum and submit a separate request to the Board of Governors for an exception along with notification of the program’s approval. (See criteria in Board of Governors Regulation 6C-8.014)

Not applicable, this is a doctoral level program.

B. List program prerequisites and provide assurance that they are the same as the approved common prerequisites for other such degree programs within the SUS (see link to the Common Prerequisite Manual on the resource page for new program proposal). The courses in the Common Prerequisite Counseling Manual are intended to be those that are
required of both native and transfer students prior to entrance to the major program, not simply lower-level courses that are required prior to graduation. The common prerequisites and substitute courses are mandatory for all institution programs listed, and must be approved by the Articulation Coordinating Committee (ACC). This requirement includes those programs designated as “limited access.”

If the proposed prerequisites are not listed in the Manual, provide a rationale for a request for exception to the policy of common prerequisites. NOTE: Typically, all lower-division courses required for admission into the major will be considered prerequisites. The curriculum can require lower-division courses that are not prerequisites for admission into the major, as long as those courses are built into the curriculum for the upper-level 60 credit hours. If there are already common prerequisites for other degree programs with the same proposed CIP, every effort must be made to utilize the previously approved prerequisites instead of recommending an additional “track” of prerequisites for that CIP. Additional tracks may not be approved by the ACC, thereby holding up the full approval of the degree program. Programs will not be entered into the State University System Inventory until any exceptions to the approved common prerequisites are approved by the ACC.

Not applicable, this is a doctoral level program.

C. If the university intends to seek formal Limited Access status for the proposed program, provide a rationale that includes an analysis of diversity issues with respect to such a designation. Explain how the university will ensure that Florida College System transfer students are not disadvantaged by the Limited Access status. NOTE: The policy and criteria for Limited Access are identified in Board of Governors Regulation 6C-8.013. Submit the Limited Access Program Request form along with this document.

Not applicable, this is a doctoral level program.

D. If the proposed program is an AS-to-BS capstone, ensure that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as set forth in Rule 6A-10.024 (see link to the Statewide Articulation Manual on the resource page for new program proposal). List the prerequisites, if any, including the specific AS degrees which may transfer into the program.

Not applicable, this is not an AS-to-BS capstone degree program.

**Institutional Readiness**

VI. Related Institutional Mission and Strength

A. Describe how the goals of the proposed program relate to the institutional mission statement as contained in the SUS Strategic Plan and the University Strategic Plan (see link to the SUS Strategic Plan on the resource page for new program proposal).

The Ph.D. in Intelligent Systems and Robotics degree program strongly aligns with the University of West Florida 2017-2025 Strategic Plan as follows:

**Strategic Direction 1.1:** Provide high-quality learning and co-curricular experiences that inspire students to become enlightened and engaged global citizens and successful professionals.

UWF values research opportunities for students at all levels through initiatives that allow students to develop research and professional skills as well as develop the ability to think
critically, acquire confidence, and inspire creativity. These professional skills and personal qualities are highly valued by employers seeking future employees who will seek to sustain and grow their businesses.

The doctoral degree program in Intelligent Systems and Robotics is an example of the type of high quality research opportunity that UWF will provide students to collaborate with seasoned researchers working on the cutting edge of innovation. UWF faculty and IHMC Researchers will mentor the doctoral students as they expand their creativity and critical thinking skills by adding to be body of knowledge and innovation in the field of intelligent systems and robotics.

**Strategic Direction 3.3:** Augment and invest in academic and research programs that meet professional, personal, scholastic, and workforce needs.

The Northwest region of Florida and the state of Florida as a whole have identified the need for a workforce skilled in information technology and engineering fields to support growth in defense, aerospace, advanced manufacturing, and healthcare. To meet existing and future workforce demands, UWF has developed the doctoral degree program in Intelligent Systems and Robotics to enhance the pool of highly-skilled professionals and researchers to support economic growth at the regional, state, and national levels.

**B. Describe how the proposed program specifically relates to existing institutional strengths, such as programs of emphasis, other academic programs, and/or institutes and centers.**

UWF has strong, well-attended undergraduate programs in Computer Science and Engineering as well as master’s degree programs in Computer Science and Information Technology. These programs will provide future students for the Ph.D. program. In support of the program, the affiliation with IHMC provides access to significant human and physical resources. IHMC has recently completed an $8,000,000 building that houses their robotics program and provides an excellent adjunct to UWF’s recent $32,000,000 Science and Engineering building that houses the departments of Computer Science, Electrical and Computer Engineering, and Mechanical Engineering. In addition, UWF faculty and students are active in a variety of research activities related to intelligent systems and robotics. A few highlights are below:

- 2nd place in the IEEE SoutheastCon Hardware Competition held in Tampa, FL in April 2018 by UWF’s Robotics team
- NSA National Center of Academic Excellence designation for UWF’s Center for Cyber Security
- Artificial Intelligence Research Group comprised of faculty, undergraduate and graduate students
- Faculty research projects in intelligent systems and robotic mobility aids

IHMC Researchers are working on advancing autonomous capabilities of robots and software agents with the aim of creating more effective machine teammates. IHMC’s national and international reputation in robotics is highlighted by their success in the following competitions including:

- 2nd place in the 2015 DARPA Robotics Challenge (U.S. Defense Advanced Research Projects Agency)
• 2nd place 2017 World Cybathlon (competition for disabled athletes aided by wearable robotics)
• 1st place in the science and medicine category at the 12th Annual People’s Choice Podcast Awards
• Seven IHMC Researchers are NAI Fellows named by the National Academy of Inventors

C. Provide a narrative of the planning process leading up to submission of this proposal. Include a chronology in table format of the activities, listing both university personnel directly involved and external individuals who participated in planning. Provide a timetable of events necessary for the implementation of the proposed program.

The preliminary planning phase took place in summer and early fall, 2015 with the preparation of the CAVP Pre-proposal. The detailed planning process commenced in fall, 2015 with a meeting of UWF and IHMC personnel. Numerous planning meetings were held to formulate the curriculum, to identify and hire an external consultant, to establish a funding model, and to develop the proposal. Details are presented in Tables 9 and 10 below.

Table 9. Planning process

<table>
<thead>
<tr>
<th>Date</th>
<th>Participants</th>
<th>Planning Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov. 20, 2015</td>
<td>Provost, HMCSE Dean, members of UWF and IHMC</td>
<td>Kickoff meeting</td>
</tr>
<tr>
<td>Dec 2015 – Feb 2016</td>
<td>Committee</td>
<td>Discussions of curriculum, funding, library and physical assets, general concerns of external consultant</td>
</tr>
<tr>
<td>Feb 26, 2016</td>
<td>Coffey, Bagui, HMCSE Dean</td>
<td>Update to the Dean, feedback on emerging plan</td>
</tr>
<tr>
<td>March 1, 2016</td>
<td>Coffey &amp; Ken Wright at Moffett Cancer Center</td>
<td>Phone conversation and email exchange for information regarding an exemplar collaborative program</td>
</tr>
<tr>
<td>March 2016 – May 2016</td>
<td>Meetings with IHMC, consultation with ASPIRE</td>
<td>Begin curriculum discussions; external consultant selection; development of timeline; plan updates; discussions of library and physical resources; etc.</td>
</tr>
<tr>
<td>May 25, 2016</td>
<td>Coffey, Heise, Day, Arkin</td>
<td>Preliminary agreement with Dr. Ron Arkin at Georgia Tech to serve as external consultant</td>
</tr>
<tr>
<td>June 30, 2016</td>
<td>External Consultant, Committee, UWF faculty, ASPIRE, Provost, IHMC</td>
<td>On-campus visit by the external consultant</td>
</tr>
<tr>
<td>August, 2016</td>
<td>External Consultant</td>
<td>External Consultant Report</td>
</tr>
<tr>
<td>Aug. 2016 May, 2017</td>
<td>Committee, HMCSE Dean</td>
<td>Work on recommendations from the first External Consultant report</td>
</tr>
<tr>
<td>Dec 2017</td>
<td>HMCSE Dean</td>
<td>Initiation of paperwork to hire IS&amp;R faculty</td>
</tr>
<tr>
<td>Dec 2017 - March 2018</td>
<td>Committee, ASPIRE</td>
<td>Modifications to the curriculum, continued preparation of the Request to Offer</td>
</tr>
<tr>
<td>Jan, 2018 - April 2018</td>
<td>Coffey, Beamer, Schwartz, Moorer, Graduate Counsel, Dean’s Office and others</td>
<td>Preparation, review, and approval of Program and Course CCRs</td>
</tr>
</tbody>
</table>
Table 10. Events leading to implementation

<table>
<thead>
<tr>
<th>Date</th>
<th>Implementation Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 2015</td>
<td>CAVP Conference call - No concerns</td>
</tr>
<tr>
<td>December, 2015 – June</td>
<td>Meetings of the committee (as documented above) to formulate the proposal, create an</td>
</tr>
<tr>
<td>June 2016</td>
<td>advisory board, prepare CCRs, and identify an external consultant</td>
</tr>
<tr>
<td>June, 2016</td>
<td>Completed contract with External Consultant</td>
</tr>
<tr>
<td>July, 2016</td>
<td>First version of the proposal sections pertaining to curriculum, faculty, and library</td>
</tr>
<tr>
<td></td>
<td>and physical resources submitted for review by the external consultant. Edits to the</td>
</tr>
<tr>
<td></td>
<td>proposal made on the basis of feedback.</td>
</tr>
<tr>
<td>August, 2016</td>
<td>Proposal sections pertaining to the funding model submitted for review by the external</td>
</tr>
<tr>
<td></td>
<td>consultant. Edits to the proposal made based on feedback.</td>
</tr>
<tr>
<td>October 2016</td>
<td>Feedback from external consultant</td>
</tr>
<tr>
<td>August, 2017 - May,</td>
<td>Development of the Affiliation Agreement between UWF and IHMC, formalizing the prerogatives</td>
</tr>
<tr>
<td>March, 2018</td>
<td>and responsibilities of each in the program</td>
</tr>
<tr>
<td>March, 2018 - May,</td>
<td>Continued development of the Request to Offer the new degree program</td>
</tr>
<tr>
<td>May, 2018</td>
<td>Internal approvals for the program (UWF Faculty Senate, Provost, President)</td>
</tr>
<tr>
<td>June, 2018 (anticipated)</td>
<td>Approval of the Proposal by the University of West Florida Board of Trustees</td>
</tr>
<tr>
<td>November, 2018</td>
<td>Approval of the Proposal by the Florida Board of Governors</td>
</tr>
<tr>
<td>December, 2018</td>
<td>Submission of Substantive Change Prospectus to SACSCOC</td>
</tr>
<tr>
<td>June, 2019 (anticipated)</td>
<td>Approval by SACSCOC Board of Trustees</td>
</tr>
<tr>
<td>Spring and summer 2019</td>
<td>Advertise the program with stipulation “pending SACSCOC approval”; make acceptance</td>
</tr>
<tr>
<td>(anticipated)</td>
<td>decisions for first class</td>
</tr>
<tr>
<td>August, 2019 (</td>
<td>Launch Program</td>
</tr>
<tr>
<td>anticipated)</td>
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</tr>
</tbody>
</table>

VII. Program Quality Indicators - Reviews and Accreditation

Identify program reviews, accreditation visits, or internal reviews for any university degree programs related to the proposed program, especially any within the same academic unit. List all recommendations and summarize the institution's progress in implementing the recommendations.

Pursuant to Florida Board of Governor’s Regulation 8.015, all academic departments at UWF conduct program reviews every seven years. The Department of Computer Science conducted its last program review in 2013-2014. The program review committee recommended the department pursue disciplinary accreditation. The Department of Computer Science received a positive evaluation of its readiness review in 2017 and is on track for ABET accreditation by fall, 2018. The Department of Electrical and Computer Engineering, also housed in the Hal Marcus College of Science and Engineering, currently has ABET accreditation for undergraduate degrees in Computer Engineering and Electrical Engineering. The new (fall, 2016) Department of
Mechanical Engineering has the Bachelor’s degree in Mechanical Engineering which will go through the ABET review in the 2018-19 academic year. ABET does not accredit doctoral programs.

VIII. Curriculum

A. Describe the specific expected student learning outcomes associated with the proposed program. If a bachelor’s degree program, include a web link to the Academic Learning Compact or include the document itself as an appendix.

By completing the Ph.D. in Intelligent Systems and Robotics degree program, students will attain the following competencies:

Content
- Analyze, synthesize, and evaluate concepts and models for intelligent systems and robotics, including analyses based on relevant mathematics, statistics, engineering, and concepts related to machine learning, knowledge representation, and reasoning.
- Construction and complete a dissertation that advances knowledge in a focused area of research related to intelligent systems and robotics.
- Design and create specific hardware and/or software that demonstrates proof of concept in conjunction with coursework and dissertation.

Critical Thinking
- Identify, describe, and appraise the significance of unresolved research questions pertaining to intelligent systems and robotics.

Communication
- Analyze, synthesize, and communicate research results in oral and written form.

Integrity/Values
- Demonstrate and apply salient professional ethics to the implementation of research.

Project Management
- Design and conduct team-based research in the field of intelligent systems and robotics, and draw defensible conclusions from that research.

B. Describe the admission standards and graduation requirements for the program.

Admission and graduation requirements are available from the University of West Florida Catalog (http://catalog.uwf.edu) and in (See Appendix F).

Admission Standards:
- Submission of the Graduate Record Exam (GRE). Attainment at the 70% percentile is preferred.
- Hold a master's degree in Computer Science, Mathematics, Engineering, Physics, or a similar technical degree. Bachelor’s candidates with strong relevant industrial experience will be considered. Incoming students who do not hold a master’s degree in an approved area will be required to complete a minimum of 48 SCH of content-based coursework (9
SCH of post-bachelor courses, 9 SCH of doctoral core courses, and 30 SCH of doctoral electives) in addition to the required 24 SCH of dissertation. Students may petition to satisfy preparatory coursework by proficiency examination. Any coursework taken from outside the program must be approved by the student’s advisor and program director.

- Master's or bachelor's cumulative GPA - minimum of a 3.0 GPA; however, successful applicants will typically have GPAs well above the minimum.
- Submission of a personal statement describing prior experiences and accomplishments in intelligent systems and robotics, and an indication of the student's goals in pursuing the current degree.
- A minimum of three letters of recommendation are required from academic and professional recommenders attesting to the applicant’s graduate studies potential. At least one of the letters of recommendation submitted must be from an academic reference. Please be sure to advise recommenders of the following requirements: All letters of recommendation must be on official letterhead of the recommender’s institution or organization and must have their official written signature.
- Those without a background in algorithm analysis, data structures, and advanced computer programming skills will require additional preparatory work.
- Applicants from countries where English is not the official language must also demonstrate proficiency in English. The Admissions Committee reserves the right to conduct telephone interviews with these applicants. For a complete listing of admission requirements for international applicants, please visit the International Graduate Admission section of the catalog.

Advancement to Candidacy
- Completion of 18 or 48 SCH for candidates entering the program with an approved master’s or bachelor’s degree, respectively.
- Passing a comprehensive qualifying exam with written and oral components.

Dissertation
- All doctoral candidates are required to work with a faculty mentor to conduct, document, and publicly defend a piece of original research.

Graduation Requirements
- Students will complete 9 SCH of core didactic coursework in Intelligent Systems and Robotics (specified in the next sections)
- Students will complete at least 9 SCH of didactic coursework in their specialization area
  - Students who enter the degree program without a master’s are required to complete 39 SCH
- Students may select elective hours of didactic coursework or mentored research experience
- Students will complete a Qualifying Examination
- Students will complete a minimum of 24 SCH of dissertation. The dissertation will consist of original research designed and conducted under the supervision of a dissertation advisor. The student will assemble a dissertation committee consisting of the research advisor and a minimum of three other members. The student will write a dissertation proposal, defend it before the committee, and conduct the dissertation research study once the proposal has been approved by the committee. The student will
then write the results in the dissertation document and defend the study before the committee.

C. Describe the curricular framework for the proposed program, including number of credit hours and composition of required core courses, restricted electives, unrestricted electives, thesis requirements, and dissertation requirements. Identify the total numbers of semester credit hours for the degree.

The curricular framework for the proposed program is 42 SCH minimum for students who enter the program with an approved master’s degree. Degree requirements outlined as follows:

- Complete 6 required courses (18 SCH):
  - 3 core courses
  - 3 specialization courses
  - Additional courses as deemed necessary by student’s advisor
- Pass Qualifying Exam
- Make requests for committee: composed of research advisor and a minimum of three other members
- Obtain approval of dissertation proposal
- Complete 24 SCH dissertation minimum
- Defend dissertation

The curricular framework for the proposed program is 72 SCH minimum for students who enter the program without an approved master’s degree. Degree requirements outlined as follows:

- Complete 16 required courses (48 SCH)
  - 3 core courses (9 SCH)
  - 3 specialization courses (9 SCH)
  - 10 courses in specialization or as program-approved electives (30 SCH)
  - Additional courses as deemed necessary by student’s advisor
- Pass Qualifying Exam
- Make requests for committee: composed of research advisor and a minimum of three other members
- Obtain approval of dissertation proposal
- Complete 24 SCH dissertation minimum
- Defend dissertation

The curricular framework allows flexibility for the creation of individualized programs to meet student needs. The first semester provides foundational coursework. The second semester is comprised of specialization courses pertaining to the student’s area of interest. Following advancement to candidacy, the program requires 24 SCH of dissertation.

UWF Policy states that doctoral students who have completed the required coursework in their program of study and enrolled in dissertation credits are considered full time students. This policy allows for the Ph.D. degree program to require fewer dissertation credits than similar programs at other institutions. As such, the expected time to degree for the students is five years post-bachelor’s degree and four years post-master’s degree. This length of time for degree completion is comparable to other Ph.D. programs in the State University System of Florida.

D. Provide a sequenced course of study for all majors, concentrations, or areas of emphasis within the proposed program.
The sequenced courses of study below in Tables 11 and 12 reflect minimum semester credit hour requirements of 9 SCH Core Courses, 9 SCH Electives, 24 SCH Dissertation and benchmarks of qualifying exam, dissertation proposal, and dissertation defense. Students without an approved master’s degree must complete an additional 30 SCH of electives in the degree program.

Table 11. **Sequenced course of study for students in proposed Intelligent Systems and Robotics degree program for Students with an approved master’s degree**

<table>
<thead>
<tr>
<th>Students with an Approved Master's Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td><strong>Fall</strong></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td><strong>Summer</strong></td>
</tr>
</tbody>
</table>

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Table 12. *Sequenced course of study for students in Intelligent Systems and Robotics degree program for students without an approved master’s degree*

<table>
<thead>
<tr>
<th>Semester</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td>3 Core Courses (9 SCH)</td>
<td>-Additional Courses as needed per Advisor (6 SCH)</td>
<td>-Additional Courses as needed per Advisor -Qualifying Exam -Dissertation Topic/Prospectus Preparation (3 SCH)</td>
<td>Dissertation (3 SCH)</td>
<td>Dissertation (3 SCH)</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>3 Specialization Courses (9 SCH)</td>
<td>-Additional Courses as needed per Advisor (6 SCH)</td>
<td>Dissertation (3 SCH)</td>
<td>Dissertation (3 SCH)</td>
<td>Dissertation (3 SCH)</td>
</tr>
<tr>
<td><strong>Summer</strong></td>
<td>-Additional Courses as needed per Advisor (6 SCH)</td>
<td>-Additional Courses as needed per Advisor (6 SCH)</td>
<td>Dissertation (3 SCH)</td>
<td>Dissertation (3 SCH)</td>
<td></td>
</tr>
</tbody>
</table>

E. Provide a one- or two-sentence description of each required or elective course.

**Core Courses** (Required – all students take these courses)

**EEL6XXX Foundations of Intelligent Systems and Robotics (3 SCH)**
Models and methods of intelligent systems and robotics focusing on mathematical and algorithmic underpinnings. Semantic and geometric representations of people, robots and their environments, sensing and perception, collision avoidance, planning, reasoning, search, reasoning and planning under uncertainty, motion planning and control, neural networks, Markov models, ethics.

**ISC6529 Research Methods for Intelligent Systems and Robotics (3 SCH)**
Models and methods of intelligent systems and robotics focusing on computational methods and their algorithmic performance. Optimization theory, sampling theory, partially observable Markov decision processes, recursive Bayesian filters including Kalman and particle filters, supervised and unsupervised machine learning, deep learning, incremental sampling and search.

**EEL6XXX Special Topics in Intelligent Systems and Robotics (3 SCH)** An independent research-oriented seminar course in the foundations of intelligent systems and robotics. The course is interdisciplinary in nature, providing an integrated view of the relationships
between hardware and software in intelligent systems. Students conduct individual or small-group research, present research findings to the class and conduct discussions of the work they present. Admission to the class is by permission of the instructor.

**Elective Courses**

**EGM6XXX Engineering Foundations for Robotics (3 SCH)**
This course is focused on robot modeling and it covers robot kinematics such as forward kinematics, inverse kinematics, and differential kinematics. In addition, it deals with robot dynamics, trajectory generation, and tracking. Advanced topic on high-level control such as admittance and impedance control will also be covered.

**CAP6XXX Intelligent Agents (3 SCH)**
The course will cover the underlying theory of intelligent agents, their implementation, and applications of single and multi-agent systems. The course will consider common agent architectures and various methods of agent cooperation. Students will construct their own agents in order to solve a range of problems. The course will employ simulations of multi-agent systems involving both cooperating and competing agents.

**CAP6XXX Advanced Data Mining (3 SCH)**
This course will cover advanced topics in data mining including large-scale data mining using Map-reduce, similarity search (including minwise hashing and locality sensitive hashing), mining data streams, mining social networks, relational data mining, and matrix factorization methods for data mining.

**EEL6XXX Multivariable Linear Control Systems (3 SCH)**
This course focuses on input-output and state space representation of linear continuous time dynamic systems. Analysis and synthesis techniques for multi-input (MIMO) control systems. Design and analysis of single and multi-variable feedback control systems in transform and time domain. Study of the stability and robustness of feedback loops. Approaches for optimal and robust feedback control design, chiefly H2, H-infinity, and mu synthesis.

**EEL6XXX Bipedal Walking Robots (3 SCH)**
This course is the study of walking robots and what it means to balance. It first considers static balance and basic quadrupedal walking based on static stability, followed by dynamic balancing and the study of the fundamentals of the inverted pendulum. The course will then work through a series of increasingly complex bipedal walkers. Throughout the course various ways to interpret stability including static stability, center of mass, center of pressure, zero moment point and capturability are considered. The course also addresses how complex movement including running and trotting are achieved. The course considers how disturbances affect walking, such as unexpected step-downs and pushes. Consideration is given to how walking robots can be made robust to such disturbances. This course will be conducted mostly in simulation using the IHMC Simulation Construction Set software. Advanced students may be able to take advantage of the walking robots at the IHMC Robotics Lab. The course work will involve reading material focused on different approaches to walking several programming projects.
**EEL6XXX Wearable Robotics (3 SCH)**
This course introduces various concepts and components of autonomous systems in an autonomous mobile robotics context. The main concepts covered include locomotion, vehicle kinematics, autonomous navigation and intelligent path planning and perception. System components include various types of sensors and actuators and state-of-the-art technologies.

**ISC7248 Deep Reinforcement Learning (3 SCH)**
This course addresses deep learning and reinforcement learning and their combination in deep reinforcement learning. The course covers various reinforcement learning techniques including dynamic programming, value iteration, policy iteration, and actor-critic methods. It covers various deep learning techniques including convolution neural networks and learning through backpropagation. These techniques will be combined for learning policies for various control applications. Extensive software projects will utilize open source libraries from several sources. Students will implement solutions to various problems, including agents that learn to play video games, as well as complex dynamic systems, such as bipedal walking robot simulations.

**CEN7XXX Human Agent/Robot Teamwork (3 SCH)**
This course in an introduction to current methods used in computational visual perception. It presents concerns pertaining to both low level and high level perception. The course addresses fundamental aspects of image processing, the description and representation of visual features, image synthesis methods, and computational models of face, object and scene recognition. The course contains a consideration of how current knowledge pertaining to human perception may inform the development of machine vision systems.

**CEN7XXX Topics in Natural Language Processing (3 SCH)**
This course provides an introduction to the underlying theory of natural language processing from probability, statistics, and machine learning. The course covers a broad range of topics in natural language processing, including tokenization and parsing, probabilistic parsing, text classification, information extraction, meaning extraction, and question answering. The course includes a survey of algorithms including n-gram language modeling, naive Bayes classifiers, vector-space models, hidden Markov models, and probabilistic dependency and constituent parsing.

**CEN7XXX Advanced Topics in Intelligent Systems and Robotics (3 SCH)**
This course is available to allow students to explore theory pertaining to special topics related to their area of research interest. This course is optional and available to enrich the student's understanding in preparation for dissertation work. Course goals, readings, and deliverables are determined by the student and advisor. Enrollment is by permission.

**Dissertation**

**ISC 8980 Dissertation 1-6 SCH** (will be taken for at least 24 SCH of credit total)
Major individual research in a relevant research area. The dissertation reflects intensive research produced by the student and collaboratively developed with the student's graduate committee. Graded on a satisfactory/unsatisfactory basis only. Admission to candidacy, completion of all other doctoral program requirements and permission are required.
F. For degree programs in the science and technology disciplines, discuss how industry-driven competencies were identified and incorporated into the curriculum and indicate whether any industry advisory council exists to provide input for curriculum development and student assessment.

For an interdisciplinary research degree at the doctoral level, there are no relevant industry competencies for the program. During the first year of the Intelligent Systems and Robotics degree program, the director and IHMC will form an industry advisory council to provide guidance and insight on a variety of topics in the Ph.D. program. The overall goal of the industry advisory will be to provide a direct link between local and regional industries with the program.

G. For all programs, list the specialized accreditation agencies and learned societies that would be concerned with the proposed program. Will the university seek accreditation for the program if it is available? If not, why? Provide a brief timeline for seeking accreditation, if appropriate.

At this time, there are no specialized accreditation agencies nor learned societies specific to Intelligent Systems and Robotics. However, there are several learned societies that the program may pursue such as ISEE Computational Intelligence Society and IEEE Robotics and Automation Society. UWF’s Department of Computer Science is a member of Computer Research Association.

H. For doctoral programs, list the accreditation agencies and learned societies that would be concerned with corresponding bachelor’s or master’s programs associated with the proposed program. Are the programs accredited? If not, why?

The Electrical and Computer Engineering programs at UWF are ABET accredited. The new Mechanical Engineering degree program (fall, 2016) will seek ABET accreditation during the 2018-19 academic year. The Department of Computer Science has received a positive evaluation of its readiness review and is on track for ABET accreditation review in fall, 2018. ABET does not accredit doctoral level programs.

I. Briefly describe the anticipated delivery system for the proposed program (e.g., traditional delivery on main campus; traditional delivery at branch campuses or centers; or nontraditional delivery such as distance or distributed learning, self-paced instruction, or external degree programs). If the proposed delivery system will require specialized services or greater than normal financial support, include projected costs in Table 2 in Appendix A. Provide a narrative describing the feasibility of delivering the proposed program through collaboration with other universities, both public and private. Cite specific queries made of other institutions with respect to shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.

The Ph.D. degree program in Intelligent Systems and Robotics will be offered in traditional face-to-face format at the UWF main, Pensacola Campus. The program will not require specialized services for the delivery of the courses. As a research focused doctoral degree program, much of the instruction will be based on the training and education gained through the student’s research experiences and discussions with their research advisors. The affiliation agreement with IHMC includes hands on research opportunities for the students at the 40 South Alcaniz Street Pensacola, Florida facility.
While UWF has not currently developed any formal collaboration agreements with other SUS institutions for the Ph.D. degree program, IHMC currently has active affiliation agreements with several SUS institutions. UWF is open to the idea of collaboration opportunities with similar programs in the area of intelligent systems and robotics where beneficial to all parties. In addition, students will be encouraged to spend substantial periods of time collaborating with UWF and IHMC faculty on research projects.

IX. Faculty Participation

A. Use Table 4 in Appendix A to identify existing and anticipated full-time (not visiting or adjunct) faculty who will participate in the proposed program through Year 5. Include (a) faculty code associated with the source of funding for the position; (b) name; (c) highest degree held; (d) academic discipline or specialization; (e) contract status (tenure, tenure-earning, or multi-year annual [MYA]); (f) contract length in months; and (g) percent of annual effort that will be directed toward the proposed program (instruction, advising, supervising internships and practica, and supervising thesis or dissertation hours).

The following UWF Faculty information is in Appendix A Table 4:

- Mohamed Khabou
- Oscar Chuy
- John Coffey
- Eman El-Sheikh
- Thomas Reichherzer
- Sikha Bagui

B. Use Table 2 in Appendix A to display the costs and associated funding resources for existing and anticipated full-time faculty (as identified in Table 4 in Appendix A). Costs for visiting and adjunct faculty should be included in the category of Other Personnel Services (OPS). Provide a narrative summarizing projected costs and funding sources.

In addition to the full-time UWF faculty included in Table 4, the university will hire a total of four new faculty for the program over the next five years. One new faculty line will be for the program director and one additional new faculty member who will both begin in Year 1, fall, 2019. In both 2020 and 2021 respectively, an additional full-time UWF faculty will begin in the program. Funding for the four new faculty lines will be come from the Florida Legislature’s World Class Faculty and Scholar Program (2018 Florida Statute Title XLVIII Chapter 1004.6497).

The Year 1 budget for this program includes:

- $45,248 apportioned Reallocated Base Faculty Salaries and Benefits for existing UWF faculty
- $229,772 New Recurring Faculty Salary and Benefits for two new faculty lines (to be supported through the World Class Faculty and Scholars Program)

The Year 5 budget for this program includes:

- $582,903 Continuing Base Faculty Salaries and Benefits. This amount includes salary and benefits for the Year 1 faculty plus two new hires who will begin in Year 2 and Year 3 of the program (to be supported through the World Class Faculty and Scholars Program)
• $371,250 OPS expense for the IHMC Researchers who will be participating in the program and advising students in their dissertation studies to be paid with Hal Marcus College of Science and Engineering endowment funds and other foundation funds at UWF.

C. Provide in the appendices the abbreviated curriculum vitae (CV) for each existing faculty member (do not include information for visiting or adjunct faculty).

Curriculum Vitae for the following UWF faculty are in Appendix G
• Mohamed Khabou
• Oscar Chuy
• John Coffey
• Eman El-Sheikh
• Thomas Reichherzer
• Sikha Bagui

Due to the collaboration with IHMC and the important contribution that the IHMC Researchers will provide to this degree program, biographical information on participating IHMC Researchers is in Appendix H and an IHMC Research Statement is in Appendix I.

D. Provide evidence that the academic unit(s) associated with this new degree have been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, as well as qualitative indicators of excellence.

The departments of Electrical and Computer Engineering and Computer Science, which will be associated with the proposed Intelligent Systems and Robotics degree program, have been very productive in teaching, research, and service including participation in numerous departmental, college-level, and university-level committees, service to the profession as reviewers, and community outreach. The UWF faculty who will be lending their expertise to the Intelligent Systems and Robotics degree program are experienced scholars, researchers, and teachers.

Details are available in Appendix G faculty curriculum vitae. Tables 13-19 highlight some of the recent associated faculty productivity to include teaching awards, grant activity, supervision of student research, faculty research projects, recent peer-reviewed publications, semester credit hour activity, and patents.

Table 13. Sample of participating faculty teaching awards

<table>
<thead>
<tr>
<th>Faculty</th>
<th>UWF Teaching Award</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mohamed Khabou</td>
<td>Faculty Excellence in Teaching Award</td>
<td>2013</td>
</tr>
<tr>
<td>Sikha Bagui</td>
<td>Excellence in Teaching and Advising Award</td>
<td>2012,</td>
</tr>
<tr>
<td></td>
<td>Excellence in Undergraduate Teaching and Advising Award</td>
<td>2003, 2001-2002</td>
</tr>
<tr>
<td>John Coffey</td>
<td>Distinguished Teaching Award</td>
<td>1997</td>
</tr>
<tr>
<td>Eman El-Sheikh</td>
<td>President’s Award for Leadership in Diversity</td>
<td>2014</td>
</tr>
</tbody>
</table>
### Table 14. 2016-2018 Grant activity for faculty of the Hal Marcus College of Science and Engineering

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Grant Name</th>
<th>Grant Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jaromy Kuhl</td>
<td>NSF Robert Noyce Scholars</td>
<td>$1,300,000</td>
</tr>
<tr>
<td>John Pecore</td>
<td>Florida Center for Cybersecurity Collaborative Seed Grant</td>
<td>$40,000</td>
</tr>
<tr>
<td>Thomas Reichherzer</td>
<td>Florida Center for Cybersecurity Collaborative Seed Grant</td>
<td>$40,000</td>
</tr>
<tr>
<td>Anthony Pinto</td>
<td>NSA-DHS CAE Regional Resource Center for the South-Eastern Region</td>
<td>$200,000</td>
</tr>
<tr>
<td></td>
<td>NSA GenCyber Summer Camp</td>
<td>$90,000</td>
</tr>
<tr>
<td>Ezhil Kalaimannan</td>
<td>Florida Cybersecurity Center Capacity Building Grant</td>
<td>$75,000</td>
</tr>
<tr>
<td>Oscar Chuy</td>
<td>Development of Robotic Mobility Aid</td>
<td>$24,600</td>
</tr>
<tr>
<td>Lakshmi Prayaga</td>
<td>Florida Center for Cybersecurity Cyber Jedi in Smart Cities</td>
<td>$83,000</td>
</tr>
<tr>
<td></td>
<td><strong>Two-Year Total</strong></td>
<td><strong>$1,788,000</strong></td>
</tr>
</tbody>
</table>

### Table 15. Supervision of student research by faculty of the Hal Marcus College of Science and Engineering - Recent Projects

<table>
<thead>
<tr>
<th>Faculty Mentor</th>
<th>Recent Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adam Moore, Stabilization of Attendant Wheelchair Based on User’s Pose, Summer Undergraduate Research Program (SURP), Hal Marcus College of Science and Engineering, University of West Florida, 2017.</td>
</tr>
<tr>
<td></td>
<td>Lash, S., Role of Arm Configuration to the Stability of Human-Robot Physical Interaction, Summer Undergraduate Research Program (SURP), Hal Marcus College of Science and Engineering, University of West Florida, 2016.</td>
</tr>
<tr>
<td></td>
<td>Petsigner, E., Electric Powered Wheelchair Control Addressing User and Terrain Interaction, Summer Undergraduate Research Program</td>
</tr>
<tr>
<td>Faculty Mentor</td>
<td>Recent Project</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------</td>
</tr>
<tr>
<td></td>
<td>Omer Useche (2015). An Intelligent System for Measuring Attention Levels of Students in Online Course Environments.</td>
</tr>
<tr>
<td>Sikha Bagui</td>
<td>Joseph Sheehan, 2015-2016, Malware Analysis.</td>
</tr>
<tr>
<td></td>
<td>Renan Lordello, SQL Injection Attacks, Summer 2015.</td>
</tr>
<tr>
<td></td>
<td>Clark Mitchell, Malware Analysis - Datamining, Summer 2015.</td>
</tr>
<tr>
<td>Faculty</td>
<td>Project</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Oscar Chuy</td>
<td><strong>Stability of Human Robot Physical Interaction</strong>, 2016 – Present</td>
</tr>
<tr>
<td></td>
<td><strong>Human CoG State Estimation</strong> (Collaboration with Smart Design Lab, Tohoku University, Japan), 2017 – Present</td>
</tr>
<tr>
<td></td>
<td><strong>Fast Motion Planning Using Experience</strong> (Collaboration with Florida State University), 2015 – Present</td>
</tr>
<tr>
<td>Thomas Reichherer</td>
<td><strong>Wearable Devices Security</strong> - The use of wearable devices is on an upward curve with a range of devices now available from a number of manufacturers. The security and privacy issues relating to the hardware, software and the data collected by these devices, however have not been studied extensively. In this project, hardware and software security aspects of different kinds of wearable devices and their communication protocols were studied. Various attack vectors and different kind of attacks were investigated. Specifically, attacks on the integrity, confidentiality and the privacy of the data were examined. Finally, solutions and patches for security against the attack vectors and vulnerabilities are proposed. Research results have been published.</td>
</tr>
<tr>
<td></td>
<td><strong>Smart Home Technology</strong> - This project aims to build smart home systems consisting of sensor networks and smart software systems integrated into homes to monitor human activities in the home for the purpose of improving the safety and the quality of life of all people living in the home. The security and privacy issues relating to the hardware, software and the data collected by these devices, however have not been studied extensively. In collaboration with graduate and undergraduate students, several methods were developed to capture and analyze sensor data for recognizing human activities and to monitor individuals and suggest corrective actions in situation where activities may cause harm. Different methods of human-machine interaction are being investigated and applied to provide just-in-time support. A prototype sensor network and middleware services has been built and tested. Additional middleware services are being developed to perform activity recognition and an evaluation of the entire system by end users will be conducted soon. The research is described in several publications.</td>
</tr>
<tr>
<td>Mohamed Khabou</td>
<td><strong>Using Smart Device Technology to Improve Quality of life for Older Adults</strong>, (2015-present). Cooperating with Dr. Reichherzer from the Computer Science Department and Dr. Rodney Guttmann the Director of the Center on Aging to combine off-the-shelf devices with novel computer algorithms to build a SMILE (Smart Independent Living for Elders) home in which older adults and their families can monitor and improve their daily lives.</td>
</tr>
</tbody>
</table>
Engineering Department colleagues and Dr. Claudia Stanny from the Center for University Teaching, Learning, and Assessment (CUTLA) on studying the effect of distance learning on the student performance in class and instructor evaluation.

**Eman El-Sheikh**


Developed and taught a new undergraduate Computer Science course, CAP4601 *Artificial Intelligence*, which is designed to give students an introduction to core AI principles, programming techniques, and applications.

Developed and taught a new undergraduate Computer Science course, CAP4053 *AI Programming for Interactive Environments*, which is a follow-up course to CAP4601 to give students additional experience in using AI techniques for developing interactive environments including games, simulations, and educational environments.

**John Coffey**

**NUCES Project.** Researcher, Programmer and Knowledge Engineer.

Created knowledge bases, designed and programmed (25,000 loc in C) a Multimedia graphical interface for a large scale expert system.

Created Multimedia Model Editor and Model Player, the precursor to CMapTools. Database supervisor.

**Project Quorum** - Programmer on large scale joint project with IBM Latin America. Automated file transfer between OS-2 machines by writing Rexx and C programs to UUencode and upload the files to mainframes, send files across SNA networks, UUdecode and download files on the other end.

**Knowledge Preservation at NASA Lewis Research Center** - Elicited knowledge regarding Launch Vehicle System Integration from senior NASA engineers and represented that knowledge in multimedia knowledge models. Demonstrated three different arrangements of the knowledge to target various audiences and uses.

**Navy Meteorological and Oceanographic Facility** - METOC. Assisted in performing Cognitive Work Analysis of the installation, and in the creation of new ways to represent meteorological data.

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**Table 17.** Recent peer-reviewed publications by faculty of the Hal Marcus College of Science and Engineering

<table>
<thead>
<tr>
<th>Year</th>
<th>Manuscript</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coffey, J.W. (2017). A Framework for a Multi-Faceted, Educational, Knowledge-</td>
</tr>
<tr>
<td>Year</td>
<td>Manuscript</td>
</tr>
<tr>
<td>------</td>
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<tr>
<td></td>
<td>Lorenzetti, C., Maguitman, A., Leake, D., Menczer, F., and <strong>Reichherzer, T.</strong> (2016). Mining for Topics to Suggest Knowledge Model Extensions. ACM Transactions on Knowledge Discovery from Data, Vol. 11, Issue 2, article no. 23.</td>
</tr>
<tr>
<td>Year</td>
<td>Manuscript</td>
</tr>
<tr>
<td>------</td>
<td>-----------</td>
</tr>
</tbody>
</table>
Table 18. Fall student credit hours (SCH) generated by related departments of the Hal Marcus College of Science & Engineering 2013-2017

<table>
<thead>
<tr>
<th>Level</th>
<th>Department</th>
<th>2013 SCH</th>
<th>2014 SCH</th>
<th>2015 SCH</th>
<th>2016 SCH</th>
<th>2017 SCH</th>
<th>5 Year SCH Avg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under-graduate</td>
<td>Computer Science</td>
<td>5,050</td>
<td>5,390</td>
<td>5,068</td>
<td>5,287</td>
<td>4,889</td>
<td>5,137</td>
</tr>
<tr>
<td></td>
<td>Electrical &amp; Computer</td>
<td>2,752</td>
<td>2,846</td>
<td>2,884</td>
<td>3,574</td>
<td>2,820</td>
<td>2,975</td>
</tr>
<tr>
<td></td>
<td>Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Information Technology*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>802</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,266</td>
</tr>
<tr>
<td>Graduate</td>
<td>Computer Science</td>
<td>665</td>
<td>555</td>
<td>572</td>
<td>625</td>
<td>499</td>
<td>583</td>
</tr>
<tr>
<td></td>
<td>Totals</td>
<td>8,467</td>
<td>8,791</td>
<td>8,524</td>
<td>9,486</td>
<td>10,276</td>
<td>9,109</td>
</tr>
</tbody>
</table>

*New program fall 2016

Table 19. Patent awards and applications by related faculty in the Hal Marcus College of Science and Engineering

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Innovation</th>
<th>U.S. Patent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collins, El and Chuy O.</td>
<td>Slip mitigation control for electric ground vehicles</td>
<td>Application: US 15/131,689</td>
</tr>
<tr>
<td>Ford, K.M., Canas, A.J., &amp; Coffey, J.</td>
<td>Concept map-based multimedia computer system for facilitating user understanding of a domain of knowledge.</td>
<td>#5,506,937</td>
</tr>
</tbody>
</table>

X. Non-Faculty Resources

A. Describe library resources currently available to implement and/or sustain the proposed program through Year 5. Provide the total number of volumes and serials available in this discipline and related fields. List major journals that are available to the university’s students. Include a signed statement from the Library Director that this subsection and subsection B have been reviewed and approved.

UWF Libraries shelve more than 800,000 print volumes. Electronic resources include more than 160,000 e-books and access to approximately 80,000 journal and other serial titles through a discovery system.

A review of holdings in relevant Library of Congress classifications (TJ211 and TJ217.5) indicates that UWF collection includes access to 2,000+ resources related to intelligent systems, including 822 print titles. The library has access to 139 topic-specific journals and an additional 287 topic-related journals. Indexing, abstracting and full text databases licensed by UWF with coverage of intelligent systems include:
- ACM Digital Library (Association for Computing Machinery)
- Applied Science and Technology Source (EBSCO)
- ASME Digital Journal Collection (American Society of Mechanical Engineers)
- Computer Database (Gale)
- Computer Science Collection (ProQuest)
- Engineering Village (also known as INSPEC) (Elsevier)
- IEEE Explorer
- ScienceDirect (Elsevier)
- Science Full Text Select (H.W. Wilson)
- SciFinder (CAS -- division of the American Chemical Society)
- SciTech Collection (ProQuest)
- SpringerLINK
- Telecommunications (ProQuest)
- Web of Science (Elsevier)
- Wiley Online Library

Full-text dissertations and theses are available through ProQuest Dissertations and Theses: Full-Text.

The UWF Libraries have access to following journals identified as core for intelligent systems:
- Advanced Robotics
- Advances in Robotics & Automation
- Autonomous Agents and Multi-Agent Systems
- Autonomous Robots
- Control and Intelligent Systems (2006 - 2010)
- Enterprise Information Systems
- Frontiers in Robotics and AI
- Human-Computer Interaction
- IAES International Journal of Robotics and Automation (IJRA)
- IEEE Communications Surveys and Tutorials
- IEEE Intelligent Systems
- IEEE Transactions on Automation Science and Engineering
- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Robotics
- IEEE Wireless Communications
- Information Sciences
- Intelligent Service Robotics
- International Journal of Advanced Robotic Systems
- International Journal of Applied Electronics in Physics and Robotics
- International Journal of Computer Vision
- International Journal of Humanoid Robotics
- International Journal of Hybrid Intelligent Systems
- International Journal of Intelligent Control and Systems
- International Journal of Intelligent Systems
- International Journal of Intelligent Systems and Applications
- International Journal of Intelligent Unmanned Systems
- International Journal of Knowledge-Based and Intelligent Engineering Systems
- International Journal of Mechanical Engineering and Robotics Research
- International Journal of Robotics Research
Researchers access UWF library resources from the library’s website (https://secure.uwf.edu/library/). Students, faculty and staff with Internet connections may access online library resources 24/7 with their UWF login information. Audiovisual and online resources complete the teaching and learning resources for intelligent systems students.

If needed resources are not available at the UWF Libraries, students and faculty have direct access to interlibrary loan, a free service that provides electronic articles within a few days and print books within a week.

In order to help library users navigate through the variety of available print and electronic resources, librarians publish web based research guides: http://libguides.uwf.edu/. Online tutorials (https://secure.uwf.edu/library/research_help/tutorials/) address common research concerns of students across disciplines and a general library orientation.

Each academic discipline is assigned a Reference Librarian to serve as a department liaison providing library instruction, collection development, and reference assistance for the students and faculty in that discipline. Students may request assistance at the reference desk in person or by phone, email, or chat. Students may also schedule an in person or online appointment with the liaison, who is equipped with Skype and Chat.
In addition to being able to access databases and materials in full-text online, UWF students and faculty may take advantage of these online library services:

- access required readings on electronic reserves
- request books and articles from Interlibrary Loan
- request Intercampus Loan (to/from the Fort Walton Beach Campus library)
- renew books
- submit a reference question via text, email, or chat
- request rush processing of an item that is on order
- suggest the purchase of a particular book or journal
- request an item that is checked out to be recalled for use
- have UWF and Interlibrary Loan books delivered to your home address if you live over 50 miles from campus
- borrow materials from public state universities and colleges in Florida.

B. Describe additional library resources that are needed to implement and/or sustain the program through Year 5. Include projected costs of additional library resources in Table 2 in Appendix A. Please include the signature of the Library Director in Appendix B.

After consultation with the Dean of UWF Libraries, the existing collection of journals, electronic databases, and other library holdings are sufficient to implement and sustain this program through Year 5. There is no library allocation for this program for Year 1 or Year 5.

C. Describe classroom, teaching laboratory, research laboratory, office, and other types of space that are necessary and currently available to implement the proposed program through Year 5.

UWF main Pensacola campus

The Departments of Computer Science and Electrical and Computer Engineering are housed in Building 4, a recent, $32,000,000 building located on the UWF main Pensacola campus. In addition to classrooms and laboratories, Building 4 contains faculty and administrative offices for the academic departments. There is office space available for the new faculty in this building. Nine technology-enhanced classrooms are available for general use in Building 4.

The Department of Computer Science utilizes two technology-enhanced classrooms and four laboratories for:

- general computing research,
- artificial intelligence and projects,
- cybersecurity, and
- smart home research.

The Department of Electrical and Computer Engineering utilizes three technology-enhanced classroom and laboratories for:

- autonomous vehicles and robotics,
- control systems,
- circuits, and
- power systems.
IHMC has two general-purpose meeting rooms and a large presentation room. IHMC opened a new research building in fall 2016 that hosts a state-of-the-art robotics and exoskeleton high bay laboratory. The first floor contains the Visual Vestibular Balance Device, a one-of-a-kind human balance system that can provide multiple axes of simple or complex rotational stimuli, while recording neurophysiological responses. IHMC lab space is large enough for a number of robotics projects and is currently at about 70% capacity. The UWF Ph.D. students will add to the vibrancy and creativity of the lab.

The second floor of the new facility features an observation corridor overlooking the high bay robotics laboratory that provides viewing access of robotics work. The second and third floors contain smart classrooms and lab space. The third floor also contains one large laboratory space and offices.

Below is a list of IHMC specialized laboratories:

- Media Lab
- Testing Lab
- Cyber Lab
- Augmentics Lab
- Robotic High Bay
- Spatial Disorientation (Guedry) Lab

This Ph.D. degree program will leverage these facilities and IHMC’s international reputation.

D. Describe additional classroom, teaching laboratory, research laboratory, office, and other space needed to implement and/or maintain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Table 2 in Appendix A. Do not include costs for new construction because that information should be provided in response to X (E) below.

The Ph.D. in Intelligent Systems and Robotics degree program will be offered at the UWF main Pensacola campus. The program will be affiliated with IHMC. The IHMC facility is 12.2 miles from the UWF main campus. No additional classroom or laboratory research space will be needed to implement the program nor to support this degree program through Year 5.

E. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university’s fixed capital outlay priority list. Table 2 in Appendix A includes only Instruction and Research (I&R) costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form below. It is expected that high enrollment programs in particular would necessitate increased costs in non-I&R activities.

No new capital expenditures for instructional or research space is required to implement this program.

F. Describe specialized equipment that is currently available to implement the proposed program through Year 5. Focus primarily on instructional and research requirements.
Beginning in Year 1 and continuing to Year 5, the Intelligent Systems and Robotics degree program will use specialized equipment that is currently available at UWF and IHMC.

**UWF main Pensacola Campus**

The Department of Computer Science houses a six-node Hadoop cluster, a distributed computing environment that is capable of storing and analyzing large amounts of unstructured data.

**In UWF Building 4**

- The Computing Research Laboratory has extensive hardware and software capabilities including:
  - 24 Dell PCs,
  - 36 Cisco Catalyst 2900XL Switches,
  - 12 Cisco 3600 Routers and
  - 18 Cisco 2500 Routers

- The Multiplatform Laboratory utilized almost exclusively for Computer Science students contains:
  - Dell computers running Windows 10 with a variety of software including:
    - JGrasp
    - Netbeans
    - Eclipse
    - Dia
    - Microsoft Office
    - OpenOffice
  - Dell computers running Linux with:
    - all common Linux/UNIX GNU compilers and utilities
    - secure remote access capabilities to Linux servers
    - OpenOffice
  - Apple OS X computers running MacOS X which have:
    - a variety of compilers
    - Microsoft Office
    - OpenOffice

- The UWF Department of Electrical and Computer Engineering has a range of specialized equipment including:
  - WAM Barrett manipulator
  - KUKA manipulator
  - Custom built robotic walker/wheelchair
  - Custom built Autonomous Ground Vehicle

- The UWF Department of Mechanical Engineering has the following specialized equipment:
  - Bridgeport “J head” milling machine
  - Clausing 5904 Lathe
In UWF Building 72

- The UWF Department of Exercise Science in the Usha Kundu College of Health has:
  - a biomechanics lab
  - a Vicon Motion Capture System

IHMC 40 South Alcaniz Street, Pensacola

IHMC has a wide range of specialized equipment to support the program. The Simulation Construction Set is an in-house simulation library environment developed specifically for development and testing of robotic systems. The robots, logging server, and lab computers, are connected over a 10 GB network. Data at the facility can be logged from a robot at the rate of 10,000 variables at one millisecond record rate, plus four high definition video streams, which become synchronized with that data. This data is stored on a 100TB server and can be analyzed using log replay and analysis software. Additional resources at IHMC which the faculty and students in the Intelligent Systems and Robotics program will utilize include:

A 500 square foot in-house metal prototyping facility outfitted with
- hand tools,
- power tools and
- computer numerical control (CNC) machines
- mill
- 3D printer
- carbon fiber layup prototyping shop
- wood shop used to construct environment mock-ups and simulate real world usage scenarios

Robotic equipment including:
- Boston Dynamics Atlas humanoid robot
- NASA Valkyrie Robot
- Pioneer DX and Pioneer AT mapping and navigation robots
- Several different quadrotor aircraft
- A turtle-bot like robot

Many sensors including:
- Cameras
- Carnegie sensor head
- Sony Kinect, SIC LIDARs
- Hokuyo LI
- FLIR
- Velodyne

Virtual Reality hardware and software including:
- Oculus Rift Virtual Reality System
- HTC Vive Virtual Reality System
- Microsoft HoloLens, mixed reality holographic computer and head-mounted display
- Google Tango augmented reality computing platform

Software licenses for many software products, including:
- Matlab base license with signal processing, optimization, and control toolboxes
- Jira and Confluence collaboration tools
G. Describe additional specialized equipment that will be needed to implement and/or sustain the proposed program through Year 5. Include projected costs of additional equipment in Table 2 in Appendix A.

Between equipment located on the UWF main campus in Pensacola and the IHMC facility at 40 South Alcaniz Street Pensacola, FL, no additional specialized equipment needs are anticipated to implement or support this program through Year 5.

H. Describe any additional special categories of resources needed to implement the program through Year 5 (access to proprietary research facilities, specialized services, extended travel, etc.). Include projected costs of special resources in Table 2 in Appendix A.

Between equipment located on the UWF main Pensacola campus and the IHMC facility at 40 South Alcaniz Street, no additional special categories of resources are needed to implement nor anticipated to support this program through Year 5.

I. Describe fellowships, scholarships, and graduate assistantships to be allocated to the proposed program through Year 5. Include the projected costs in Table 2 in Appendix A.

The proposed level of support in this proposal is $25,000 assistantship per student, per year. In Year 1, the university plans to award up to five assistantships at $25,000 each for a total of $125,000. In Year 5, the university plans to award up to twenty assistantships at $25,000 each for a total of $500,000. The funds for these assistantships will come from the Hal Marcus College of Science and Engineering endowment funds or other foundation funds currently available to UWF. In return for the assistantships, students will be expected to provide teaching and/or research assistance.

J. Describe currently available sites for internship and practicum experiences, if appropriate to the program. Describe plans to seek additional sites in Years 1 through 5.

The curriculum provides applied research experiences that are implementation-focused research. Students will find internship positions at IHMC. Through the local industry advisory council to be established in Year 1 of the program, more internship opportunities should be available before Year 5.
APPENDICES:

Appendix A

Table 1a Projected Headcount from Potential Sources (Baccalaureate Degree Program)
Table 2 Projected Costs and Funding Sources
Table 3 Anticipated Reallocation of E&G Funds
Table 4 Anticipated Faculty Participation

Appendix B

Signatures

Appendix C

Summary of Similar Programs

Appendix D

External Consultant’s Report

Appendix E

Affiliation Agreement Between University of West Florida and the Institute for Human and Machine Cognition

Appendix F

University of West Florida Graduate Admissions and Graduation Requirements

Appendix G

Curriculum Vitarum

Appendix H

Biographical Information Institute for Human and Machine Cognition Researchers

Appendix I

Research Statement Institute for Human and Machine Cognition

Appendix J

Appendix A

Table 1b Projected Headcount from Potential Sources (Graduate Degree Program)

Table 2 Projected Costs and Funding Sources

Table 3 Anticipated Reallocation of E&G Funds

Table 4 Anticipated Faculty Participation
### APPENDIX A

#### TABLE 1-B

**PROJECTED HEADCOUNT FROM POTENTIAL SOURCES**

(Graduate Degree Program)

<table>
<thead>
<tr>
<th>Source of Students (Non-duplicated headcount in any given year)*</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HC</td>
<td>FTE</td>
<td>HC</td>
<td>FTE</td>
<td>HC</td>
</tr>
<tr>
<td>Individuals drawn from agencies/industries in your service area (e.g., older returning students)</td>
<td>5</td>
<td>2.75</td>
<td>7</td>
<td>3.85</td>
<td>8</td>
</tr>
<tr>
<td>Students who transfer from other graduate programs within the university**</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Individuals who have recently graduated from preceding degree programs at this university</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.55</td>
<td>1</td>
</tr>
<tr>
<td>Individuals who graduated from preceding degree programs at other Florida public universities</td>
<td>1</td>
<td>0.55</td>
<td>2</td>
<td>1.1</td>
<td>4</td>
</tr>
<tr>
<td>Individuals who graduated from preceding degree programs at non-public Florida institutions</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Additional in-state residents***</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.55</td>
<td>2</td>
</tr>
<tr>
<td>Additional out-of-state residents***</td>
<td>1</td>
<td>0.55</td>
<td>2</td>
<td>1.1</td>
<td>4</td>
</tr>
<tr>
<td>Additional foreign residents***</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.55</td>
<td>2</td>
</tr>
<tr>
<td>Other (Explain)***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>7</td>
<td>3.85</td>
<td>14</td>
<td>7.7</td>
<td>21</td>
</tr>
</tbody>
</table>
### APPENDIX A

#### TABLE 2

**PROJECTED COSTS AND FUNDING SOURCES**

<table>
<thead>
<tr>
<th>Instruction &amp; Research Costs (non-cumulative)</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reallocated Base* (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enrollment Growth (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Recurring (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Non-Recurring (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philanthropy Endowments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprise Auxiliary Funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal columns 1+…+7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuing Base** (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Enrollment Growth (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other*** (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philanthropy Endowments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprise Auxiliary Funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal columns 9+…+14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Faculty Salaries and Benefits               | 125,000 | 371,250 |
| A & P Salaries and Benefits                 | 0       | 0       |
| USPS Salaries and Benefits                  | 0       | 0       |
| Other Personal Services                     | 0       | 0       |
| Assistantships & Fellowships                | 125,000 | 0       |
| Library                                     | 0       | 0       |
| Expenses                                    | 25,000  | 50,000  |
| Special Categories                          | 0       | 0       |
| Total Costs                                 | $59,248 | $649,920 |

*Identify reallocation sources in Table 3.
**Includes recurring E&G funded costs ("reallocated base," "enrollment growth," and "new recurring") from Years 1-4 that continue into Year 5.
***Identify if non-recurring.

#### Faculty and Staff Summary

<table>
<thead>
<tr>
<th>Total Positions</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty (person-years)</td>
<td>1.73</td>
<td>3.23</td>
</tr>
<tr>
<td>A &amp; P (FTE)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>USPS (FTE)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Calculated Cost per Student FTE

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total E&amp;G Funding</td>
<td>$314,020</td>
<td>$649,920</td>
</tr>
<tr>
<td>Annual Student FTE</td>
<td>3.85</td>
<td>19.25</td>
</tr>
<tr>
<td>$81</td>
<td>$81,564</td>
<td>$33,762</td>
</tr>
</tbody>
</table>

#### Table 2 Column Explanations

Worksheet Table 2 Budget
## APPENDIX A

### TABLE 3
ANTICIPATED REALLOCATION OF EDUCATION & GENERAL FUNDS*

<table>
<thead>
<tr>
<th>Program and/or E&amp;G account from which current funds will be reallocated during Year 1</th>
<th>Base before reallocation</th>
<th>Amount to be reallocated</th>
<th>Base after reallocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reallocated portion of faculty expenses from Department of Computer Science and Engineering in HMCSE to the Department of Intelligent Systems &amp; Robotics in HMCSE</td>
<td>45,248</td>
<td>45,248</td>
<td>$0</td>
</tr>
<tr>
<td>Reallocated portion of A &amp; P Salaries &amp; Benefits expenses from Department of Computer Science and Engineering in HMCSE to the Department of Intelligent Systems &amp; Robotics in HMCSE</td>
<td>14,000</td>
<td>14,000</td>
<td>0</td>
</tr>
</tbody>
</table>

**Totals**

Worksheet Table 3 Reallocation
## APPENDIX A

### TABLE 4
ANTICIPATED FACULTY PARTICIPATION

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Faculty Name or &quot;New Hire&quot; Higheset Degree Held Academic Discipline or Speciality</th>
<th>Rank</th>
<th>Contract Status</th>
<th>Initial Date for Participation in Program</th>
<th>Mos. Contract Year 1</th>
<th>FTE Year 1</th>
<th>% Effort for Prg. Year 1</th>
<th>PY Year 1</th>
<th>Mos. Contract Year 5</th>
<th>FTE Year 5</th>
<th>% Effort for Prg. Year 5</th>
<th>PY Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Mohammed Khabou, PhD. Electrical Engineering</td>
<td>Professor</td>
<td>Tenured</td>
<td>2018</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
</tr>
<tr>
<td>A</td>
<td>Oscar Chuy, Ph.D. Engineering</td>
<td>Assistant Professor</td>
<td>Tenure Earning</td>
<td>Fall 2019</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
</tr>
<tr>
<td>A</td>
<td>John Coffey, Ed.D. C&amp;I Math, Statistics, Science</td>
<td>Professor</td>
<td>Tenured</td>
<td>Fall 2019</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
<td>9</td>
<td>0.75</td>
<td>0.05</td>
<td>0.04</td>
</tr>
<tr>
<td>A</td>
<td>Eman El-Sheik, Ph.D. Computer Science</td>
<td>Professor</td>
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**Total Person-Years (PY)**  
1.73  
3.23

Worksheet Table 4 Faculty
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</table>

Overall Totals for Year 1: 1.73
Overall Totals for Year 5: 3.23
Appendix B

Signatures
Please include the signature of the Equal Opportunity Officer, Dean of University College, and the Dean of University Libraries.

Kim LeDuff, PhD
Equal Opportunity Officer/ Vice President
Academic Engagement

Robert Dugan
Dean of University Libraries

This appendix was created to facilitate the collection of signatures in support of the proposal. Signatures in this section illustrate that the Equal Opportunity Officer has reviewed section II. E. of the proposal, the Dean and AVP of University College has reviewed sections on General Education III. D., V. A. and VIII. B. & D. and the Library Director has reviewed sections X. A. and X. B.

UWF also requires that a Request to Offer a New Degree Program is reviewed by the Chief Technology Officer.

Melanie Haveard
Chief Technology Officer

Please include the signature of the Equal Opportunity Officer and the Library Director.
Appendix C

Summary of Similar Programs
Summary of Similar Programs

The proposed Ph.D. degree program in Intelligent Systems and Robotics will train the next generation of educators and researchers to develop technology combining human and machine elements. Intelligent systems are advanced machines that are able to assess and respond to the world around them with varying amounts of human intervention. Intelligent systems take many forms including:

- Brain-controlled prosthetic limbs that allow amputees to return to work,
- Crawling robots that can find survivors buried in rubble at disaster scenes or the battlefield, and
- Semi- or fully-autonomous vehicles transporting passengers and goods to their desired destination with little or no intervention.

Intelligent systems seek to enhance human existence in the areas of advanced manufacturing, healthcare, defense, and transportation by performing dangerous or mundane tasks once performed by humans and thereby directly improving human quality of life.

The Ph.D. in Intelligent Systems and Robotics will be the first Ph.D. within the state of Florida with CIP code 11.0102 Artificial Intelligence. There are three doctoral programs at universities in the United States that currently offer a doctoral degree in artificial intelligence: Carnegie Mellon University, Georgia Institute of Technology, and University of Pittsburgh.

Among the SUS institutions in Florida, there are five universities that have doctoral degree programs in Computer Science CIP 11.0102 and four universities that offer a doctoral degree in computer engineering CIP 14.0901. While there are components of each of these degree programs that address advanced study in topics like machine learning, artificial intelligence, or robotics, these programs do not focus exclusively on the elements of intelligent systems and robotics that make this field of study unique. University of Florida added a Ph.D. degree program in Human Centered Computing (CIP 11.0104) focuses on user design interfaces while UWF’s program focuses on the interaction of intelligent systems with robotics and automation.
Appendix D

External Consultant’s Report
Recommendation Report

Ronald C. Arkin, Consultant

These recommendations are based on the Proposal to Offer a New Degree Program received by the consultant in June of 2016 with accompanying appendices, and a visit to the campus on June 30, 2016 where meetings with IHMC faculty, Aspire, the Provost, leadership of IHMC, and IHMC researchers provided aspirations, clarification, concerns, and perspective on the goals and potential implementation of this program.

My recommendations are as follows:

1. Although self-evident, it must necessarily be stated: Always focus on quality. Anything that compromises that puts the program in jeopardy.

2. Immediately convene a search and the hire senior leadership in Intelligent Systems as soon as possible. Someone needs to build the program and create strength in UWF in the area. This individual also has to be the outward face of the Ph.D. program to all stakeholders. Preferably a Full Professor, but a seasoned Associate Professor with experience in building or managing academic programs may also be feasible. Consider using an executive recruiting service to expedite the process. Include a partial appointment in IHMC (or Fellowship) both as a draw, as well as a formal bridge between the two entities. Allocate faculty lines for this senior individual to use for future hiring.

3. Reach a written accord between UWF and IHMC as soon as possible and formalize it with an MOU. This requires agreement on several items (not limited to):
   
   A. First, clarify what is possible from a legal and accreditation perspective (State, University System, SACS) for IHMC researchers in terms of Ph.D. advising, faculty governance, etc. Then determine what is desirable from both parties.

   B. Agree upon and expressly state the title of the IHMC faculty participating in the program (Adjunct/Joint faculty? with or without advising ability? With or without voting rights with respect to faculty governance?).

   C. Address directly any potential conflicts of interest between the two entities (financial, administrative, resource allocation, time commitment and priorities), and resolve them.

   D. Make clear how the funds will flow between the units, and the timing of the financials (cost reimbursement? Time-based?).

   E. Explicitly enumerate the roles, expectations, and responsibilities for all of the parties (faculty, leadership).

   F. Expressly state how admissions will be conducted and the role of IHMC in that process.

   G. Expressly state how Ph.D. advising will be handled in terms of advisorships (sole of co-advising only for IHMC?), committee memberships (must there be at least one UWF regular faculty member on each committee?), etc.
Move towards a formal contractual agreement after the MOU is in place that delineates the financial and personnel details for a fixed time period – indicating a strong commitment on both sides to ensure the success of the program.

4. Continue to align the expectations of both UWF faculty and IHMC through continued discussions, meetings, and even seminars to ensure that there is little or no lingering apprehension about the relationship. This needs to be managed from the top in both UWF and IHMC.

5. Clarify the costs associated with the program. They currently make little sense to me. Make explicit the uses for the non-recurring money (line items), any recurring costs (line items), and how much will pass through to IHMC for the first 5 years of the program when ideally steady state should be reached.

6. Consider an expanded timeline for implementation - perhaps to a start of Fall 2019 for enrollment of the first Ph.D. students instead of Fall 2018, to ensure that quality is the first and foremost driver of the process. This is the first Ph.D. program for UWF and it needs to be a flagship. It cannot and should not fail. If there is any doubt of its success you should consider aborting the process now.

7. Engage marketing and communications and allocate funds for them to promote the effort in the months ahead. Tying this directly to the IHMC relationship is the win-win that you need. But approval for a promotional strategy moving ahead is needed.

8. Start hammering out the specific details of the structure of the program, as these will delineate the responsibilities required. Comprehensive and/or qualifying exams need to be decided upon, so that when student recruiting begins you can have explicit requirements for graduation posted on a website. They will need to know what these exams look like and what material will be covered in them.

9. Consider a minor as a course requirement to ensure the interdisciplinary nature of the program and the relevance of coursework to dissertation research (9 credits). A minor can be self proposed by a student and approved by the faculty (or designated PhD advisor).

10. Expand the program to be available in other units, particularly ECE, not only CS. ME and Psychology (Cognitive Science) can follow later if appropriate and the faculty are interested. It will be the same degree but matriculation will occur in different departments.

11. Clarify what the residency requirement for student is for the Ph.D. program and determine how it can be satisfied (esp., with respect to students doing research off campus continuously such as at IHMC).

12. Do not require an M.S. for admissions to the program. You want the best students worldwide to apply, and many BS students have excellent research experience nowadays. You cut off a major source of quality if you restrict your pool so severely. Also industrial experience in and of itself is not important. Quality research experience is.

13. Consider joining CollegeNet to manage your PhD admissions process:
https://corp.collegenet.com/products/admissions/admissions.html
This makes it easier for students to apply, as many Universities and colleges (including ours) use this service. There may be others as well.

14. Do not create courses on specialized topics solely for Ph.D. students. A class size of 5-10 is not cost effective. Ensure that MS students can enroll and receive credit towards their degree, and if appropriate allow advanced undergraduates to enroll.

15. Grow your own quality students by offering research experiences for undergraduates. It’s trivial to get funds for these purposes on existing NSF grants. Couple this with internships at IHMC.

16. Recognize the fact that many high quality applicants will come from outside the United States (e.g., India and China) and reflect this in your numbers (e.g., Table 1-B)

17. Update Table 4 to represent more realistic numbers for the workload of faculty.

18. Include funding for a 0.5 FTE Staff member responsible for advising PhD students.

19. It is recommended that course reductions be given to faculty that bear significant advising responsibilities. Teaching loads of 2-2 (down from the existing 3-3) for 3 PhD advisees seems reasonable to me. Include funds to offset the additional teaching staff that will be required as a consequence.

20. Arrange for personnel exchanges via leaves or sabbaticals between IHMC and UWF to cement the relationship even more than it already is.

These initial recommendations are for your consideration and I look forward to your comments and hopefully actions.
Appendix E

Affiliation Agreement between University of West Florida and
the Institute for Human and Machine Cognition
AGREEMENT BY AND BETWEEN THE FLORIDA INSTITUTE FOR HUMAN AND MACHINE COGNITION AND UNIVERSITY OF WEST FLORIDA BOARD OF TRUSTEES

This Affiliation Agreement (“Agreement”) is made and entered into by and the Florida Institute for Human & Machine Cognition (“IHMC”), a not-for-profit research institute of the State University System of Florida, and the University of West Florida, for and on behalf of the University of West Florida Board of Trustees, a public body corporate (“UWF”). In consideration of the promises made in this Agreement, the receipt and sufficiency of which are hereby acknowledged, IHMC and UWF agree as follows:

I. UWF-IHMC Joint Ph.D. in Intelligent Systems and Robotics.
   A. UWF and IHMC will cooperate to institute the Ph.D. Program in Intelligent Systems and Robotics (the “Program”), an interdisciplinary Ph.D. program, as set forth in the program description attached hereto as Attachment "1".
   B. UWF and IHMC further agree:
      i. To jointly seek sources of external support to fund this collaborative effort, including joint legislative initiatives and Triumph Gulf Coast calls for proposals.
      ii. To make available to the public, other researchers, and faculty those facts, methods and new findings that are discovered through the joint research of the Parties, and to disseminate research findings by a variety of methods, including publications of all types, seminars, and workshops in accordance with Florida law; provided, however, that such activities do not compromise the filing of patent applications involving newly developed technology or know-how resulting from this collaboration.
      iii. To share physical facilities and support services in ways that will expand and provide more cost effective Ph.D. research projects and mutual interest activities for the Parties.
      iv. To jointly hire research personnel that complement the purpose and objectives of this Agreement.
      v. To each make available personnel (administrative and other), office space, services, facilities, and equipment under control of the parties (within limits of statutory authorities, and as budget, insurance and other considerations permit). Each party shall continue to provide salaries, benefits, and travel costs of its respective employees during such time as they are involved in this Program, except where otherwise agreed to in writing.
   C. UWF and IHMC also agree to comply with the recommendations and requirements of the other Party's applicable institutional review boards regarding cooperative projects; and to serve as members of the other Party's appropriate review boards as permitted and mutually agreed upon.
   D. The University of West Florida shall maintain ultimate authority for the administration of the Program in all matters pertaining to academic integrity, including but not limited to, curriculum, faculty oversight, and degree attainment.
   E. This Agreement is subject to and contingent upon the Program receiving final approval by the UWF Board of Trustees, the Florida Board of Governors, and the Southern Association for Colleges and Schools Commission on Colleges.

II. Duties of the Parties.

Throughout the term of this Agreement, the Parties agree to:

A. Use reasonable efforts to satisfy and comply with all Program Policies;
B. Share responsibility for creating an appropriate learning environment for Program students which promotes the development of explicit and appropriate professional attributes;

C. Provide Program faculty consistent with circulated objective criteria and standards for teaching, research, and other academic activities in accordance with applicable requirements;

D. Cooperate and consult with each other regarding the assignment of duties to and evaluation of the performance of academic responsibilities by those faculty;

E. Share the Legislatively appropriated funds provided for the Program that are in the UWF base budget as provided herein and any funding received from other external sources, such as the World Class Faculty and Scholar Program, the State University Professional and Graduate Degree Excellence Program, and Triumph Gulf Coast awards;

F. Promptly notify each other of issues related to alleged or claimed Program student, faculty and/or staff negligence or misconduct, including receipt of related documents, as appropriate;

G. Comply with all applicable laws and accreditation standards in the performance of their respective responsibilities and obligations under this Agreement; and

H. Seek opportunities to discuss further programmatic collaborative efforts as both Parties deem desirable.

I. Reimburse salaries and benefits for compensation of shared employees, consistent with level of effort.

III. Term.

This Agreement is for a term of ten (10) years (the “Term”) beginning with the 2017/2018 academic year and expiring on June 30, 2028 unless renewed or sooner terminated in accordance with this Agreement. The Term may be renewed and extended by written agreement of the Parties. In order to fully effectuate this Agreement, various addenda may also be entered into and each of them may have their own effective and termination dates, but in no event will they begin before or end after the term of this Agreement.

IV. Costs/Expenses.

A. Both parties acknowledge that significant expenses have been incurred in the planning for, and securing of necessary approvals for the Program implementation. It is expected that UWF will request funding from the Florida Legislature each year and that support for the Program will be received annually. Additional support through Triumph Gulf Coast proposals and other grant/contract funding will be aggressively pursued with the assistance of both IHMC and UWF.

B. IHMC research scientists with an appointment in the UWF Department for Intelligent Systems and Robotics will receive compensation from UWF for mentoring Ph.D. students in the Program and for teaching lecture courses in the Program. The compensation will be based on actual work assignments. UWF shall fund the work conducted by the IHMC scientists including standard benefits required for such participation from funds designated for the Ph.D. program. These funds will be provided directly to IHMC. The work assignment will be determined by the Program Director to include teaching lecture courses and leading the mentoring dissertations.
V. Status of IHMC Scientists at UWF

Select IHMC scientists will be provided an appointment in the UWF Department for Intelligent Systems and Robotics to facilitate participation in the program. Selection of faculty for participation in the program will be based on possessing the appropriate qualifications as determined by UWF policy and accreditation requirements. Initial selection will be based on UWF’s sole determination that faculty possess the appropriate qualifications and satisfy accreditation standards. Final participation will be approved by the Program Director, UWF Vice President for Academic Affairs (or designee) and the IHMC Chief Executive Officer (or designee). IHMC scientists will be appointed in the Department with the title of UWF Director of Research Professor. It is the specific intent of the parties that the IHMC scientists will have administrative duties and are not in-unit faculty for purposes of the collective bargaining agreement between UWF and the United Faculty of Florida. The position will afford the following privileges:

A. Serve as the committee chair or a member of dissertation committees with full administrative and management responsibilities for the committee.

B. Teach select lecture courses within the program on an as needed basis and based on the approval of the Program Director

C. Participate in Program curriculum planning

As faculty in the Program, IHMC research scientists will be expected to provide information and data required for assessment and reporting requirements associated with the operation of the Program at UWF. This includes, but is not limited to, contribution to the Department annual reports, annual faculty evaluations, and assessment of student learning outcomes.

Faculty serving as chair of a dissertation committee agree to meet all requirements associated with this role. The Program Director will clearly communicate the duties and requirements associated with serving as chair of a dissertation committee prior to approving the committee.

IHMC research scientists identified for this Program and approved by UWF shall also carry the title of UWF Director of Research as an administrative out of unit faculty member at the level of Professor while engaged in mentoring, supervising research activities, dissertations or teaching courses under this Program.

VI. Standing Joint Curriculum Committee

A standing joint curriculum committee will be developed and serve in an advisory fashion to the Program on matters such as curriculum, development and assessment of student learning outcomes. The Program Director will serve as the committee chair. The curriculum committee should have equal representation from both IHMC and UWF. The composition of the committee is open to all IHMC research scientists with appropriate area of expertise and qualifications. IHMC research scientists participating in this Joint Ph.D. shall be voting members of that Committee. UWF representation on the committee will be determined by the Program Director and approved by the UWF Provost or President. IHMC representation on the committee will be determined by the IHMC CEO.

VII. Status of UWF Ph.D. Program Director at IHMC

A. UWF and IHMC agree to jointly participate in the selection of a Ph.D. Program Director. The program director will be a full-time UWF employee who will be responsible for the administration of this Program.
It is anticipated that this Program Director will have a 12 month 0.75 FTE benefitted appointment at UWF and a 0.25 FTE unbefitted appointment at IHMC, however this may be varied based on available funding and the requirements of the position at any given time. The Program Director selected will carry the title of IHMC Senior Research Scientist in addition to the title selected by UWF.

B. Both UWF and IHMC will identify physical space at their respective locations and will provide the necessary administrative support for the Ph.D. Program Director as needed to carry out his or her respective work obligations.

VIII. Termination of Agreement. Notwithstanding anything in this Agreement to the contrary, IHMC and UWF may terminate this Agreement before the expiration date of this Agreement as follows:

A. The Parties may agree to terminate this Agreement by mutual written agreement.

B. Either Party may terminate this Agreement without cause by giving written notice of termination to the other Party at least five years in advance of the effective date of termination specified by such notice to ensure that all currently enrolled and accepted students are able to complete the Program.

C. Either Party may terminate this Agreement by giving written notice to the other Party if (a) an accreditation letter cites one or more deficiencies in the Program that relate to the terms of this Agreement or IHMC’s or UWF’s performance under this Agreement, and the Parties are unable to agree on a modification of this Agreement to correct the cited deficiency or IHMC or UWF fails to cure the cited performance deficiency within 90 days after the date when such Party is notified of the deficiency.

D. If (a) there is a change in any law, regulation or rule, state or federal, that affects this Agreement or the activities of either Party under this Agreement, or any change in the judicial or administrative interpretation of such law, regulation or rule, or (b) any of the provisions of this Agreement are found to be in violation of the laws existing at the time of such determination, and (c) either Party reasonably believes in good faith that the change, interpretation or determination will have an adverse effect on that Party’s business operations or its rights or obligations under this Agreement, or on the basis of written opinion of counsel renders performance under this Agreement in violation of any law, rule or regulation, then the Party may, upon written notice, require the other Party to enter into good faith negotiations to renegotiate the terms of this Agreement and to take any action necessary to maintain compliance with such laws, rules or regulation. If the Parties are unable to reach an agreement concerning the modification of this Agreement within the earlier of thirty (30) calendar days after the date of the notice seeking renegotiation or the effective date of the legal change, then either Party may immediately terminate this Agreement by written notice to the other Party.

E. Either party may terminate this Agreement on ninety (90) days advance written notice to the other in the event of a financial exigency that is material to the implementation of this Agreement.

F. The performance of the UWF of any of its obligations under this Agreement shall be subject to and contingent upon the availability of funds appropriated by the Florida Legislature or otherwise lawfully expendable for the purpose of this Agreement for the current and future Term(s). UWF shall provide written notice to IHMC of the non-availability of such funds and the intent to terminate this Agreement when UWF has such knowledge. The determination of whether funds are available to support the Program shall be made in the sole discretion of UWF.
G. Termination of this Agreement in accordance with this section shall be effective as of the date specified in the Parties' written agreement of termination. Otherwise, termination of this Agreement will be valid only if a notice of termination is delivered to the other Party to this Agreement by the Party electing the termination and will be effective when the notice of termination is delivered to the other Party or, if later, as of the date specified in the notice of termination.

H. Effect of Termination. If this Agreement is terminated as provided in this section, neither IHMC nor UWF will have any further duty, right, liability, or obligation under this Agreement, except as to those duties, rights, liabilities, or obligations that by their terms are to expressly survive the termination of the Agreement. Notwithstanding the foregoing, a Party will not be relieved from liability for a breach of warranty, obligation, or representation under this Agreement that occurred before the effective date of termination. In the case of termination, the Parties will work together to ensure a smooth transition for the Program.

I. IHMC and UWF agree to work with any students affected by termination of the Agreement to ensure suitable completion of the student’s program of study and graduation.

IX. Notices

Notices to either party will be given to the contacts identified below:

TO: UWF

Office of the Provost
Bldg. 10 / Room 210
11000 University Parkway
Pensacola, FL 32514
(850) 474-2035
academicaffairs@uwf.edu

With a copy to:
Office of General Counsel
University of West Florida
Building 10
11000 University Parkway
Pensacola, FL 32514
gcfrontdesk@uwf.edu

TO: IHMC

Office of the Chief Executive Officer
Florida Institute for Human and Machine Cognition
40 S. Alcaniz Street
Pensacola, FL 32502
(850) 202-4400
kford@ihmc.us
or at any other mailing address as a Party subsequently designates by notice to the other Party that is given and effective in accordance with the provisions of this section. A validly given notice, request, demand, consent, or approval will be effective on the earlier of its receipt, if delivered personally or by commercial courier with a confirmation of receipt, or the fifth day after it is postmarked by the United States Postal Service, if delivered by first class, postage prepaid United States mail. Each Party promptly shall notify the other Party of any change in its mailing address.

X. Relationship of Parties.

A. Separate Legal Entities. IHMC and UWF are separate legal entities and shall maintain their separate legal structures and their independent authority and responsibilities for their respective missions, programs, personnel, facilities and other resources. The Board of Trustees for UWF and the Board of Directors for IHMC will retain full control over the operations of each Party in accordance with applicable Florida law. The relationship of IHMC and UWF pursuant to this Agreement is that of independent contractors and nothing in this Agreement shall be construed to create a partnership, joint venture, association, employment, or agency relationship between IHMC and UWF. Neither Party shall have the right to terminate or discipline the agents or employees of the other Party. Each Party shall be entirely responsible for its acts and for the acts of its agents, employees and representatives as provided by law.

B. Responsibility for Personnel. Each Party is responsible for the payment of the expenses, compensation, and fringe benefits of its agents, employees, and independent contractors and for the payment and reporting of all taxes, withholdings, and other contributions imposed or required under Medicare, Social Security, income tax, workers' compensation, and unemployment, compensation laws with respect to its agents, employees, and independent contractors.

C. Lack of Authority to Bind other Party. Neither UWF nor any agent, employee, or independent contractor of UWF has any authority to assume or create any contractual liability or obligation of any kind in the name or on behalf of IHMC, and neither IHMC nor any agent, employee, or independent contractor of IHMC has any authority to assume or create any contractual liability or obligation of any kind in the name or on behalf of UWF.

D. UWF Employment Authority. UWF shall have exclusive authority and responsibility to hire, discipline and terminate all its agents, employees and independent contractors, and to determine and provide their UWF salary, fringe benefits, duty assignments, professional liability protections, and other terms and conditions of their employment, appointment or engagement by UWF.
E. IHMC Employment Authority. IHMC shall have exclusive authority and responsibility to hire, discipline and terminate all its agents, employees and independent contractors, and to determine and provide their IHMC salary, fringe benefits, duty assignments, professional liability protections, and other terms and conditions of their employment, appointment or engagement by IHMC.

XI. General.

A. Nothing in this Agreement, whether express or implied, is intended or should be construed to confer or grant to any person, except IHMC and UWF, and their respective permitted assignees and successors in interest, any claim, right, remedy, or privilege in connection with this Agreement or any provision of it. This Agreement inures to the benefit of, and is binding on each Party’s permitted assignees and successors in interest.

B. This Agreement is not assignable by either Party, nor may duties hereunder be delegated or subcontracted, in whole or in part, by either Party, without the advance written approval of the other Party, and any attempted assignment or delegation by a Party without the advance written approval of the other Party will be invalid and unenforceable against the other Party.

C. Dispute Resolution. The Parties shall strive to use good faith negotiations to resolve any controversy, dispute or disagreement arising out of or relating to this Agreement or the breach of this Agreement. If the Parties are not able to resolve any dispute by negotiation, either Party may request that the dispute go before a mediator, mutually acceptable to the Parties, to resolve the dispute. The cost of the mediation, including the fees and expenses of the mediator, will be shared equally by the parties, with each party paying its own attorneys’ fees.

D. Whenever possible, each provision of this Agreement should be construed and interpreted so that it is valid and enforceable under applicable law. If a court determines that a provision of this Agreement is invalid or unenforceable under applicable law, however, that provision will be deemed separable from the remaining provisions of this Agreement and will not affect the validity, interpretation, or legal effect of the other provisions of this Agreement or the application of that provision to other circumstances in which it is valid and enforceable.

E. A Program branding and marketing strategy and process will be mutually developed and coordinated between both parties.

F. Use of Logos and Trademarks. IHMC and UWF each covenants that it shall not use the name or any logo or trademark of the other Party, including the name, logo or trademark of any unit or department of the other Party, in any advertising, promotion, literature, or other medium or manner, without the prior written consent of the other Party, which shall be granted or denied within thirty (30) days after the date of the request; provided, however, if no action is taken within such time, the request shall be deemed denied.

G. All payments or reimbursement of expenses for travel, lodging, or meal expenses made by UWF must comply with section 112.061 of the Florida Statutes.

H. In the course of providing services during the term of this Agreement, IHMC may have access to student education records that are subject to the Family Educational Rights and Privacy Act (FERPA), 20 U.S.C. 1232g, et seq. and the regulations promulgated there under. Such information is considered confidential and must therefore be protected.
To the extent that IHMC has access to "education records" under this Agreement, it is deemed a "school official," as each of these terms are defined under FERPA. IHMC agrees that it shall not use education records for any purpose other than in the performance of this Agreement. Except as required by law, IHMC shall not disclose or share education records with any third party.

I. PUBLIC RECORDS PROVISIONS.
   i. Both parties to this Agreement acknowledge that each is subject to Florida’s Public Records law, Chapter 119, Florida Statutes, which requires it to provide access to its records, subject to certain limitations. Both parties agree to allow public access to all records, documents, papers, letters or other material subject to the provision of the Florida Public Records law and made or received in conjunction with this Agreement. Refusal by either party to allow such public access will be grounds for immediate cancellation of this Agreement.

   ii. Specifically, both parties agree to:
       a. Keep and maintain public records that ordinarily and necessarily would be required in order to perform the services under this Agreement;
       b. Provide the public with access to such public records and at a cost that does not exceed that provided in chapter 119, Fla. Stat., or as otherwise provided by law;
       c. Ensure that public records that are exempt or that are confidential and exempt from public record requirements are not disclosed except as authorized by law; and
       d. Meet all requirements for retaining public records and transfer to the other party upon request and at no cost, all public records in its possession upon termination of this Agreement and destroy any duplicate public records that are exempt or confidential and exempt. All records stored electronically must be provided to the other party in a format that is compatible with the information technology systems of the other party.

   iii. Both parties agree to work together and coordinate public records requests and responses when both parties are named in the request.
Program Description

The University of West Florida (UWF) seeks to offer a Doctor of Philosophy (Ph.D.) degree program in Intelligent Systems and Robotics in CIP Code 11.0102. The degree program will be housed in the Department of Intelligent Systems and Robotics within the Hal Marcus College of Science and Engineering. The proposed degree program in CIP Code 11.0102 will be the first of its kind in the state of Florida. The proposed program comprised of 72 semester credit hours (SCH) beyond the bachelor’s degree will be an affiliation between UWF and the Florida Institute for Human and Machine Cognition (IHMC). IHMC, located at 40 South Alcaniz Street, Pensacola, Florida is a not-for-profit research institute established by the Florida Legislature in 2004 (Florida Statute 1004.447).

The university has designed the Intelligent Systems and Robotics Ph.D. degree program to train the next generation of educators and researchers to develop technology combining human and machine elements. The goal is to have well-educated citizens who will work in diverse fields, strengthen UWF’s research and scholarly activities, and create regional economic impacts.

Beyond coursework, the program's cornerstone will be hands-on, leading-edge research in robotics and artificial intelligence and will leverage the proximity and talent of UWF faculty and IHMC Researchers. Graduates from the degree program will work in a variety of high-tech industries such as advanced manufacturing, healthcare, defense, and transportation.

UWF is uniquely poised to execute and deliver this Ph.D. degree program, the first of its kind in Florida. Because of the close working relationship and physical proximity with IHMC, students and faculty will be able to leverage the infrastructure and expertise of this world-class institution.

Educating students in the subject of artificial intelligence and robotics aligns with the Florida Board of Governors’ 2025 Strategic Plan to have “well-educated citizens who are working in diverse fields, from science and engineering to medicine and bioscience to computer science, the arts and so much more.”
Appendix F

University of West Florida Graduate Admissions and Graduation Requirements
Graduate Admissions and Graduation Requirements

General Information
The Graduate School administers the application, admission, and readmission process for all degree-seeking and non-degree seeking graduate students. It also assists prospective graduate students in obtaining information about UWF.

General Policies
The University of West Florida encourages applications for admission from qualified students regardless of gender, culture, religion, ethnic background, age, marital status, or disability. Students with documented visual impairments, hearing impairments, motor impairments, or specific learning disabilities may petition for substitution of admission requirements provided such substitution does not significantly alter the nature of the program for which admission is being sought. For more information about the University's admission requirement substitution policy contact the Graduate School.

Admission of students to the University of West Florida is within the jurisdiction of the University, but subject to the minimum standards adopted by the UWF Board of Trustees and the Florida Board of Governors.

Conditions of Admission
The Graduate School will notify the applicants of the admission decision. Admission to the University is often contingent upon the subsequent receipt of satisfactory and official college or university transcripts and verification of baccalaureate degrees. Failure to submit such documents may result in the cancellation of admission. Refer to Provisional for more information.

Ownership of Submitted Documents
All credentials and documents submitted become the property of the University of West Florida. The originals or copies of the originals will not be returned to the applicant or forwarded to another institution, agency, or person.

Fraudulent Records
If it is found that an applicant has made a false or fraudulent statement or a deliberate omission on the application for admission, the residency statement, or any other accompanying documents or statements, the applicant may be denied admission. If the student is already enrolled when the fraud is discovered, the case will be adjudicated using the procedures specified for violations of the UWF Student Conduct System as contained in the Student Handbook and Planner which is available online at http://uwf.edu/studenthandbook/.

Applicant Conduct
The University shall evaluate an applicant's previous conduct to determine whether offering the applicant admission is in the best interest of the University. Applicants with a record of previous misconduct at an educational institution or criminal conduct will be evaluated during the admission process in accordance with UWF Regulation 3.003.

Request for Admission for a Later Semester
Applicants are admitted to the University only for the semester for which they apply. Students who do not enroll in the semester for which they have been admitted and want consideration for a different semester must reapply for admission and pay another application processing fee. Applicants will be considered for admission under the policies in effect at that time. Admission
is not automatic. If an applicant has attended, or is currently attending, another collegiate institution since the submission of the previous application, the applicant must indicate the institution on the new application and provide an official transcript of all work attempted.

**Admission Documents Required**

Applicants for graduate admission must provide the Graduate School with the following documents:

**Application for Admission**

Applicants must apply for graduate level admission online. All graduate applications are available online at [http://uwf.edu/graduate/graduate-admissions/apply-now](http://uwf.edu/graduate/graduate-admissions/apply-now). The application for admission and a non-refundable, non-deferrable $30 processing fee payable to the University of West Florida should be submitted six to nine months prior to the semester for which admission is requested. It is the policy of the University not to defer or waive the application for admission and the application processing fee. The application processing fee must be in U.S. currency and drawn from a U.S. bank. There is an option to pay via credit card when the web application is submitted.

**College Transcripts**

Applicants must submit one official transcript from each college and university attended to the Graduate School. Applicants who received their undergraduate degree from UWF do not need to provide UWF transcripts. Transcripts are considered official when they are sent from a college or university directly to the Graduate School and bear an official seal and signature. Transcripts bearing the statement "Issued to Student," faxed transcripts, or transcripts submitted by the applicant are not considered official. Original documents or signed, officially certified photocopies of original documents may be submitted by the applicant only when institutions outside the U.S. will not send academic records to other institutions. The verifying signature should preferably be that of an officer of the institution attended. All academic records that are not in English must be accompanied by certified English translations.

**Test Scores**

Official test results from a nationally standardized graduate admission test are required for all applicants unless otherwise specified by the graduate program to which you are applying. Applicants should contact the graduate department for which he/she applied to inquire as to which test is acceptable for that program or if it may be waived. The University of West Florida accepts the Graduate Record Examination (GRE), the Miller Analogies Test (MAT), and the Graduate Management Admissions Test (GMAT). For the majority of departments, it is recommended that the graduate admission test be taken no later than April for the fall semester, August for the spring semester, or January for the summer semester. Applicants should contact the specific department for departmental deadlines for admission tests. Applicants to the Ed.D. program should take the GRE or MAT one year prior to desired admission. The test scores are considered official only when they are sent directly to the Graduate School from the testing agency. Examinee copies are not considered official. The GRE, GMAT, and MAT are offered several times a year at numerous testing centers in the U.S. and abroad. Advanced registration is required. Registration forms, as well as detailed information on the availability and character of the examinations, may be obtained from the UWF Testing Center.

**Departmental Requirements**

Some departments have additional admission requirements such as auditions, portfolios, goal statements, letters of recommendation, departmental applications, writing samples, personal
 interviews, and diagnostic testing. Applicants should contact the department directly regarding any departmental admission requirements.

**Deadlines for Applications and Supporting Documents**
The final deadlines for applications and supporting documents for graduate applicants are:
- **Fall**: June 1
- **Spring**: October 1
- **Summer**: March 1

Because some departments have earlier deadlines, applicants should contact the specific academic departments for departmental deadlines. It is in an applicant's best interest to apply early. Files completed after the published deadlines may not be processed in time for the applicant to be considered for enrollment in the desired semester.

**Admission Policies**
Admission to a UWF graduate program is a selective process that is governed by University requirements and department requirements that may exceed University-level requirements. Admission decisions are based on a holistic review of credentials in which multiple criteria are used to judge the appropriateness of an applicant to pursue graduate study. Each department selects factors it considers will help predict probable success in the graduate program and may include, but are not limited to, the quality of the applicant's undergraduate or graduate preparation as determined by the undergraduate or graduate institution attended; undergraduate or graduate grade point average and performance in specific courses; scores on standardized admission tests; the motivation and attitude of the applicant as determined by a personal statement, letters of reference, and/or a personal interview or other means; and writing ability. Preference for admission to any semester is given to students whose credentials indicate the greatest promise for academic success. Because of factors related to a department's enrollment capacity, the fact that a student meets minimum requirements does not guarantee admission to a specific program. Admission requirements shall not include preferences in the admissions process for applicants because of race, national origin, or gender.

**Requirements for Regular Admission to a Master's Program**
Each applicant shall be required to meet minimum University requirements:
- An earned bachelor's degree from an institution that is fully accredited by a regional or national accrediting agency recognized by the United States Department of Education or a comparable degree from an international institution with a minimum cumulative grade point average (GPA) of 3.0 on a 4-point scale, or a 3.0 (GPA) on a 4-point scale on the last 60 hours of coursework in the baccalaureate degree.
- Be in good standing at all previous institutions of higher learning. Students who, for academic or disciplinary reasons, are not eligible to register in the college or university last attended will not be admitted for graduate study.
- A score on a nationally standardized graduate admissions test, such as the General Test of the Graduate Record Examination (GRE), the Miller Analogies Test (MAT), the Graduate Management Admission Test (GMAT), or an equivalent that is acceptable for the program to which the student is applying. Applicants should contact the graduate department for which he/she applied to inquire as to which test is acceptable for that program or if it may be waived. Test scores must be no more than five years old.
- Approval by the department offering the degree to which the applicant is applying.
Departments may establish standards that exceed these University requirements or require additional application materials. Departments may accept an earned graduate degree from a U.S. institution that is fully accredited by a regional or national accrediting agency recognized by the United States Department of Education or a comparable degree from an international institution in lieu of the bachelor's degree and required standardized admission test.

Requirements for Regular Admission to a Doctoral Program
Each applicant shall be required to meet minimum University requirements:
• An earned master's degree from an institution that is fully accredited by a regional or national accrediting agency recognized by the United States Department of Education or a comparable degree from an international institution with a minimum cumulative grade point average (GPA) of 3.5 on a 4-point scale.
• Be in good standing at all previous institutions of higher learning. Students who, for academic or disciplinary reasons, are not eligible to register in the college or university last attended will not be admitted for graduate study.
• A score on a nationally standardized graduate admissions test, such as the General Test of the Graduate Record Examination (GRE), the Miller Analogies Test (MAT), or an equivalent that is acceptable for the specialization to which the student is applying. Applicants should contact the graduate department for which he/she applied to inquire as to which test is acceptable for that program or if it may be waived. Test scores must be no more than five years old.
• Other requirements as specified by each specialization for the degree.
• Approval by the department offering the specialization to which the applicant is applying.

Provisional Admission
With approval from the department, students who do not have all application materials available at the time of admission may be granted provisional admission by the Graduate School. Provisional admission is appropriate for circumstances such as when the baccalaureate degree has been awarded but the undergraduate institution has not yet posted the degree, when graduate admissions has not received the applicant's official standardized test score, or when information required by the department is incomplete. Students who are granted provisional admission must submit all application materials during the first semester of graduate study or risk removal by the Graduate School of their status to pursue graduate study.

Conditional Admission
Students who do not meet the minimum requirements for regular admission may be admitted by a department on a conditional basis. In order to be considered for conditional admission, students must submit all required admission materials. Also, students who have graduated from a recognized, although non-accredited, institution may be admitted on a conditional basis at the department’s discretion. Students admitted on a conditional basis may be permitted to register for up to 12 semester hours, identified by the department as appropriate to the degree. In addition, the student must:
1. Earn at least a grade of “B” on each of those courses during the semester(s) where the student is admitted on a conditional basis
or
2. Earn a semester grade point average above a 3.0, earning no less than a C+ on any given course, during the semester(s) where the student is admitted on a conditional basis.

Failure to accomplish the above may result in the removal of his/her status to pursue graduate study. Admission on a conditional basis should not be routine.
Appeal of Admission Denial
Denial of Admission to Graduate Programs
Applicants who have been denied admission or readmission to a graduate program at the University may appeal the denial by filing a written letter of appeal with the Director of the Graduate School, by sending it to gradadmissions@uwf.edu or The University of West Florida, Graduate School, Building 11 Room 207, 11000 University Parkway, Pensacola, Florida 32514. The letter of appeal must address the reasons why the applicant believes the decision is in error. It must be received by the Graduate School within 30 days of the date of the denial letter, or by the first day of classes of the semester for which admission was requested, whichever is shorter. Once received, the appeal letter will be forwarded to the appropriate College Dean. The College Dean will convene a faculty committee to review the denial within 20 days of the date of the appeal letter. The committee will consider the materials submitted by the applicant including the letter of appeal. The committee’s decision will be forwarded to the applicant by the Graduate School within five business days of the date of the receipt of the committee’s decision. This appeal decision is final.
Applicants who are denied admission or readmission to the University for judicial and/or conduct reasons should refer to UWF/REG. 3.003.

General Readmission
Readmission to Master's and Specialist Programs
Graduate students not in attendance during three or more consecutive academic semesters (including summer semester), but less than five years, must complete the "Application for Readmission" and provide any required documentation. The application must be filed according to readmission deadlines stated in the Academic Calendar for the semester to which the student is reapplying. The "Application for Readmission" does NOT include an application processing fee.
Readmitted students will have their official catalog year automatically updated to the catalog year in effect at the time of re-enrollment. Readmitted students also have the option of changing their catalog year to the catalog year in effect at the time of graduation.
Degree-seeking students file the readmission application in the Graduate School. Official transcripts from each college or university attended since previous enrollment at UWF must be submitted to the Graduate School prior to readmission. If a student is currently enrolled at another institution, the final transcript must be submitted when the term has ended. Readmission is not automatic and is at the discretion of the Graduate School and graduate department. Graduate students who last attended their graduate program five years ago or more must reapply to their program using the graduate application for admission.

Readmission to Doctoral Program
Doctoral candidates who do not attend three consecutive semesters must formally reapply to the University and to the program. Readmission to the doctoral program is at the discretion of the Ed.D. Admissions Committee.

International Graduate Admission
Applicants to the University are considered international if they are not U.S. Citizens, dual citizens, or permanent residents. In addition to the policies and procedures stated for the different categories of admission, the following information pertains to international applicants.

International Student Office (ISO)
The International Student Office provides immigration assistance to all international students, scholars, and employees at the University of West Florida and is available to assist students with
problems ranging from immigration to cultural and personal matters. Students should feel free to ask questions and seek assistance from this office at any time. Among the services offered are:

- Advising on immigration rules, regulations, responsibilities, and deadlines processing immigration requests and forms such as travel documents, employment authorizations, dependent documents, and social security card applications/approvals
- Optional Practical Training (OPT) and Curricular Practical Training (CPT) Workshops
- Communication with the international student community of any changes in immigration rules and regulations
- Connecting students with appropriate university offices or federal and state agencies
- Serving as a liaison with other university units on behalf of international students

The Office of International Education and Programs is located in Building 71 and may be reached at 850-474-2479. Please see additional information for international students and available services at uwf.edu/internationaloffice.

**Academic Records**

International applicants must submit original documents or signed, officially certified photocopies of original documents, as well as certified translations of all documents that are not in English. International applicants must also have their foreign credentials evaluated by one of the four evaluation services listed below. The evaluation should contain a course-by-course description and a grade point average from each institution attended. Applicants have the responsibility to contact the evaluation agency directly and have the evaluation agency send the official evaluation report to UWF. The official evaluation report must be received by the application deadline for the semester the applicant plans to attend.

**English Proficiency Test**

If the international applicant's native language is not English or the applicant is from a country in which the primary language is not English, he or she must take one of the following tests before consideration of admission. English proficiency test scores are considered official only when they are sent directly to the Graduate School from the testing agency. Not all exams are available outside the U.S. and most are offered on a fixed schedule. Contact the testing agencies directly for scheduling information.

- Test of English as a Foreign Language (TOEFL)
- International English Language Test System (IELTS)
- Michigan English Language Assessment Battery (MELAB)

Minimum scores required by the University are listed below. However, individual departments may require higher scores.

- Paper-based TOEFL (pBT): 55 Listening/Comprehension Sub Score: 53
- Internet-based TOEFL (iBT): 79/80 Listening Sub Score: 19
- IELTS: 6.5 Listening/Comprehension Sub Score: 7
- MELAB: 78

International students expecting to receive appointments as teaching assistants also are required by Florida law to pass a test of spoken English and must obtain and report a minimum TOEFL iBT Listening sub score of 23 to the Graduate School.

International non-degree seeking applicants, including applicants attending UWF under an international exchange agreement, must meet the English proficiency requirement.

**Exemptions from proof of English proficiency**

- UWF Intensive English Program (IEP) students who successfully complete the advanced level with an average of B+ (88) and score 78 or higher on the IEP exit test (MELICET) are eligible
for admission to the University of West Florida if they meet all other requirements of the University.

- International students with a bachelor's degree from a U.S. institution or who have successfully completed a full year of full-time academic course work at a regionally accredited institution in the U.S. preceding the semester for which admission is sought. Intensive English course work does not qualify.

**Certification of Finances**

Certification of finances must be completed and returned to the International Student Office before the student visa, "Certificate of Eligibility" (Form I-20), is issued. The University is required by U.S. Citizenship and Immigration authorities to check the financial resources of each student prior to issuing Form I-20. Therefore, it is important for the applicant to know the costs of attending the University and have the necessary funds for the entire period of enrollment. Funds for one year of study and living expenses must be documented and approved by the University before an I-20 is issued.

The "Confidential Financial Statement" form must be completed, signed by the student, and verified by the student's or sponsor's bank or financial institution with a statement of deposit. Before completing the "Confidential Financial Statement," the applicant should review the estimate of institutional costs and living expenses under Tuition and Fees. The total amount of funds available to the student must be listed for each year of planned attendance and must equal or exceed the total estimate of institutional costs and living expenses. This form must be accurate and documented to avoid unnecessary delay in processing. The "Confidential Financial Statement" and supporting documents from the student's or sponsor's bank or financial institution should be submitted to the International Student Office by email at intered@uwf.edu.

**Health Form/Health Insurance**

Applicants must submit a "Mandatory Immunization Health History Form" completed by the applicant. Refer to the Immunization Requirements for more information.

International students are required to show certified proof of adequate medical insurance coverage for illness or accidental injury for an entire academic year before they will be permitted to register or to continue enrollment. An adequate medical insurance policy must meet a number of requirements as listed on the "Health Insurance Compliance Form", including that the insurance proceeds are payable in U.S. currency. Insurance may be obtained at the University before registration.

**Notice of Admission**

If a student's application for admission to UWF is approved, an official letter of admission will be sent by the Graduate School. Admission is for a specific semester only. If the student is unable to enroll for the semester indicated on the letter of admission, the Graduate School should be informed immediately. Under no circumstances should an applicant make departure plans for Pensacola until official approval has been given by the Graduate School and the student has received the Form I-20 from the International Student Office (see section on passports and visas). Students who come to the campus without first receiving an official notice of acceptance do so at their own risk. The student's presence on the campus will not influence the decision on an application for admission.

**International Exchange**

International students interested in participating in the UWF exchange program must be nominated by their home institution. Once confirmation of a student's eligibility has been received by the home institution, the acceptance process can begin through the International
Student Office. For a list of participating exchange partner institutions and application procedures, please see the International Student Office's J-1 Exchange Student Admission webpage.

**Passports and Visas**
Students meeting all admission requirements of the University will be mailed a "Certificate of Eligibility" by the International Student Office. Students possessing a valid Form I-20 will be considered for a F-1) by presenting it and the following documents to the nearest U.S. Embassy or Consulate:

- A valid passport,
- Evidence of adequate financial support,
- Evidence of proficiency in the English language, and
- Any other additional documentation required by the U.S. Embassy or Consulate.
- The student visa is stamped on a page in the passport.

**Transfer of Funds**
Prospective students should familiarize themselves with the current regulations of their own governments, as many restrict the purchase of U.S. dollars. Students should arrive with ample funds in U.S. dollars or in a credit card which is authorized to be used in the U.S. International wire transfer service to UWF is also available.

**Graduation and General Degree Requirements**
http://catalog.uwf.edu/graduate/academicpolicies/graduation/#mastersdegreerequirements

**Master's Degree Requirements**
Requirements for a master's degree from UWF are listed below. The colleges and departments may have requirements which exceed these minimums. Please consult the individual departments and the individual program descriptions in this Catalog for details. Minimum requirements are the following:

- Students must be admitted and enroll at UWF for a minimum of one semester as degree-seeking in the degree program for which a degree is awarded;
- Completion of minimum 30 semester hours in an approved program;
- Completion of minimum 15 semester hours of coursework at the 6000 level or above;
- Completion of minimum 24 semester hours of credit at UWF. The department offering the program may require additional residency;
- Graduate GPA of a minimum of 3.0, refer to GPA Requirement for more information;
- Complete degree requirements within six years from the date the UWF degree is awarded, refer to the Time to Degree requirement for more information;
- A degree will not be awarded for a student on academic probation or suspension;
- A maximum of 6 semester hours of credit may be applied toward a master's degree for successful completion of a thesis;
- Master's students must enroll as degree-seeking for a minimum of one semester at UWF within the last five years of the date the degree is to be awarded. Students who need to be readmitted will be required to meet the degree requirements of the current Catalog.

**Requirements for Second UWF Master's Degree**
Requirements listed below are applicable for students who already hold a master's degree from UWF or who are pursuing two masters' degrees simultaneously. Students who have earned a master's degree from another institution must meet the requirements listed under Master's Degree Requirements.
Master's students may be candidates for two master's degrees at UWF. Candidacy in two separate master's programs may be held in overlapping time periods. Candidates must meet the conditions of graduate status stipulated by both departments;

Since a master's degree represents a level of attainment, some (or all) courses included in one graduate program may be used by another department to satisfy the formal requirements for a second graduate degree. A minimum of 18 semester hours must be taken for the second graduate degree which were not a part of the first degree;

A degree will not be awarded for a student on academic probation or suspension;

Master's students must be admitted and enroll at UWF for a minimum of one semester as degree-seeking in the degree program for which a degree is awarded;

Master's students must enroll as degree-seeking for a minimum of one semester at UWF within the last five years of the date the degree is to be awarded. Students who need to be readmitted will be required to meet the degree requirements of the current Catalog.

A second master's degree may not be earned in the same program area.

**Application for Graduation**

Students fulfilling requirements for a UWF master's or specialist degree must submit an "Application for Graduation" online by the application deadline stated in the Academic Calendar. Doctoral students apply for graduation the semester prior to the dissertation defense and must apply through the graduate department in the Ed.D. Program Office. Graduation application forms are available on the Office of the Registrar website. Retroactive graduation to a prior semester will not be approved.

**Commencement**

Commencement ceremonies at UWF are held twice a year, fall and spring, for students graduating with a Baccalaureate, Master's, Specialist, or Doctorate degree. Doctoral students must be approved by the Graduate School prior to participating in the commencement ceremony. Those master's students who plan to graduate in the summer should apply for summer graduation only. Prospective summer graduates have the option to participate in either the preceding spring or following fall ceremony. Doctoral students intending to graduate in the summer may not participate in the spring ceremony unless the dissertation has been fully approved and participation is approved by the Dean of the Graduate School. "Applications for Graduation" should be submitted by the date stated in the Academic Calendar. Students will receive information about graduation through their student e-mail accounts. Commencement information is also available on the web at uwf.edu/commencement. UWF does not have a graduation honors program for master's, specialist, and doctoral students.

**Degree Audit System**

Degree Works will identify and track all graduation requirements for each degree at the University. Students may check their individual progress toward degree completion by reviewing their degree audit, which is available in MyUWF. The degree audit is used for the final graduation check and a completed audit is required before a degree is awarded.

**Posthumous Graduate Degree**

To be considered for a posthumous degree, graduate students shall have successfully completed at least eighty percent of the chosen UWF degree program, have been in good standing at UWF, and have met UWF degree residency requirements. In exceptional circumstances the Dean of the Graduate School may make exceptions to these requirements. The student’s academic department must initiate the request for a posthumous degree through the College Dean, Dean of the Graduate School, and the Provost’s Office.
Substitution of Graduation Requirements for Students with Disabilities
Students with documented visual impairments, hearing impairments, motor impairments, or specific learning disabilities may petition for substitution of degree requirements provided such substitutions do not significantly alter the nature of the program in which the student is enrolled. For more information about the University's degree requirement substitution policy, contact the college dean of the program.
Appendix G

Curriculum Vitae
Oscar Y. Chuy Jr.
Assistant Professor Department of Engineering
Hal Marcus College of Science and Engineering
Bldg 4/ Rm. 132 11000 University Pkwy.
Pensacola, Florida 32514
Phone: (850)-474-3317
E-mail: ochuy@uwf.edu

Research Interest

Human Robot Physical Interaction and Cooperation, Motion Planning and Control, Control of Robotic Assistive Devices, and Control of Autonomous Vehicles.

Professional Preparation

Postdoctoral Research Associate (2007-2010) Department of Mechanical Engineering Florida State University Tallahassee, FL USA

Ph.D., Bioengineering and Robotics (2006) Tohoku University, Sendai Japan Supervisor: Prof. Kazuhiro Kosuge

M.S., Electrical Engineering (Major: Instrumentation and Controls) (2001) University of the Philippines, Dilliman, Quezon City, Philippines

B.S., Electrical Engineering (1996) Mindanao State University - Iligan Institute of Technology, Philippines

B.S., Electronics and Communication Engineering (1994) Mindanao State University - Iligan Institute of Technology, Philippines

Professional Experience

Assistant Professor (2015-Present) Department of Engineering Hal Marcus College of Science and Engineering University of West Florida Pensacola, FL USA
Research Faculty I (2013-2015) Department of Mechanical Engineering FAMU-FSU College of Engineering Florida State University Tallahassee, FL USA

Assistant Scholar/Scientist (2010-2013) Department of Mechanical Engineering FAMU-FSU College of Engineering Florida State University Tallahassee, FL USA

Research Associate (2006-2007) System Robotics Laboratory Department of Bioengineering and Robotics Tohoku University, Sendai Japan

Graduate Research Assistant (2002-2006) System Robotics Laboratory Department of Bioengineering and Robotics Tohoku University, Sendai Japan

Graduate Research Assistant (1998-2000) Department of Electrical and Electronics Engineering University of the Philippines, Philippines
Mindanao State University - Iligan Institute of Technology, Philippines

Contracts and Grants

Chuy, Oscar (PI), Development of a Robotic Mobility Aid, UWF (Internal Grant), May 2017-April 2018, ($24,600)

Collins, Emmanuel (PI) & Chuy, Oscar (Co-PI). NRI: Control and Planning for Slip Mitigation in Manned and Unmanned Electric Ground Vehicles. Submitted to National Science Foundation.


Patent


Research Project

Stability of Human Robot Physical Interaction, 2016 – Present

Human CoG State Estimation (Collaboration with Smart Design Lab, Tohoku University, Japan), 2017 – Present

Fast Motion Planning Using Experience (Collaboration with Florida State University), 2015 – Present


Slip Control for Electric Powered Wheelchair, (subcontract from University of Pittsburgh and Carnegie Mellon University, A National Science Foundation Engineering Research Center for
Quality of Life Technologies), 8/2012-7/2013.


Teaching

Department of Engineering, Hal Marcus College of Science and Engineering, University of West Florida:
Autonomous Systems (Mobile Robotics) EEL4990 Elements of Robotics EEL4663 Discrete Time Signals and Systems EEL3135 Linear Control Systems EEL4657 Electronics Laboratory EEL4308L Linear Control Systems Laboratory EEL4657L

Department of Mechanical Engineering, FAMU-FSU College of Engineering:
Mechatronics I (EML3811), Fall 2010 – Spring 2015 Introduction to Mobile Robotics (EML5831, graduate) Introduction to Mobile Robotics (EML4830, undergraduate)

Mindanao State University-Iligan Institute of Technology, Philippines
Introduction to Electronics: Circuits and Devices Feedback Control System

Supervision of Student Research and Projects

Adam Moore, Stabilization of Attendant Wheelchair Based on User’s Pose, Summer Undergraduate Research Program (SURP), Hal Marcus College of Science and Engineering, University of West Florida, 2017.


Lash, S., Role of Arm Configuration to the Stability of Human-Robot Physical Interaction, Summer Undergraduate Research Program (SURP), Hal Marcus College of Science and Engineering, University of West Florida, 2016.


M. Peters, A. Vignolo, and J. Bromen, Design of an Autonomous Quadrotor, Senior Design, Jan 2015 – Dec 2016, Dept. of Engineering, Hal Marcus College of Science and Engineering,
University of West Florida.


Refereed Journal Articles


Invited Book Chapters


Refereed Book Chapters


Refereed Proceedings


Non-Refereed Proceedings


International Conference Presentation


Society Memberships
Institute of Electrical and Electronics Engineers (IEEE)  Robotics and Automation Society, Member (2004- Present)

Service and Outreach


Session Chair:  IEEE Int. Conf. on Robotics and Automation, 2009  IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, 2010


Service to other Universities:  Project Leader, Development of Mobile Robot Research Platform, De La Salle University, Philippines (2010).


Technical Skills

- Realtime Operating System:  QNX, Vxworks, and Linux (RTAI)    NuttX for Pixhawk autopilot system (currently studying)
- Realtime Control/Programming:  C/C++, Matlab RT, and Labview RT
- Device Driver Development Experience:  QNX and Linux (RTAI)
- Research Platform Development: Ability to develop and control robotic platform from mechanical design, electronic instrumentation, and control programming.
- Electronic design:  analog and digital
MOHAMED A. KHAMOU
Professor and Chair
Engineering Department
University of West Florida
11000 University Pkwy, Pensacola, FL 32514
(850) 857-6031 mkhabou@uwf.edu

EDUCATION

- Ph.D., Electrical Engineering, University of Missouri-Columbia, 1999
  Dissertation Title: Improving Shared-Weight Neural Network Generalization Using
  Regularization Theory and Entropy Maximization
- MSEE, Electrical Engineering, University of Missouri-Columbia, 1993
- BSEE, Electrical Engineering, University of Missouri-Columbia, 1990

PROFESSIONAL EXPERIENCE

- Chair, Electrical and Computer Engineering Dept., University of West Florida (January
  2014-Present)
- STEM Fellow, Center for University Teaching, Learning and Assessment (2013-2014)
- Associate Professor, Electrical and Computer Engineering Dept., University of West
  Florida (2009-Present)
- Assistant Professor, Electrical and Computer Engineering Dept., University of West
  Florida (2002-2009)
- Visiting Assistant Professor, Physics Computer Science and Engineering Dept.,
  Christopher Newport University. (1999-2002)
- Research Assistant, Computer Engineering and Computer Science (CECS) Dept.,
  University of Missouri-Columbia (1991-1999)
- Teaching Assistant, Math Dept., University of Missouri-Columbia (1993-1999)
- Teaching Assistant, CECS Dept., University of Missouri-Columbia (1995-1996)

TEACHING EXPERIENCE

- At University of West Florida
  1. EGN 1002 Introduction to Engineering
  2. EEL 3135 Discrete Time Signals and Systems
  3. EEL 3211 Electrical Energy Engineering
  4. EGN 3203 Engineering Software Tools
  5. EGM 4313 Intermediate Engineering Analysis
  6. EEL 3303L Circuits I Lab
  7. EEL 3701 Digital Logic & Computer Systems (Lecture + Lab)
  8. EEL 4712 Digital Design (Lecture + Lab)
  9. EEL 4713 Digital Computer Architecture (Lecture + Lab)
 10. EEL 4744 Microprocessor Applications (Lecture + Lab)
 11. EEL 4759 Digital Image Processing
 12. EEL 4822 Pattern Recognition
 13. EEL 4834 Programming For Engineers
 14. EEL 4914C Electrical Engineering Design
 15. EEL 4949 Co-Op Work Experience
• At Christopher Newport University

16. CPEN 414 Computer Architecture
17. CPSC 205 Introduction to Computer Science
18. CPSC 230 Introduction to Computers and Programming in C++
19. CPSC 330 Computer Organization
20. CPSC 642 Pattern Recognition
21. ENGR 213 Discrete Mathematics

RESEARCH EXPERIENCE
• Using Smart Device Technology to Improve Quality of Life for Older Adults (2015-Present)
  22. Sponsor: Health Alliance Professorship

23. Cooperating with Dr. Reichherzer from the Computer Science Department and Dr. Rodney Guttmann the Director of the Center on Aging to combine off-the-shelf devices with novel computer algorithms to build a SMILE (Smart Independent Living for Elders) home in which older adults and their families can monitor and improve their daily lives.

• Processing and Classification of Actigraphy Signals (2012-2013)
  24. Cooperated/consulted with Actigraph Company on the design of features and classifiers to automatically process actigraphy signals.

• Effect of Distance Learning on Student Learning Outcomes (2008-Present)
  25. Cooperate with Electrical and Computer Engineering Department colleagues and Dr. Claudia Stanny from the Center for University Teaching, Learning, and Assessment (CUTLA) on studying the effect of distance learning on the student performance in class and instructor evaluation.

• Eigenvalues and Shapes (2007-2010)
  26. Sponsor: Sultan Qaboos University Postgraduate Studies and Research

27. Cooperate with Dr Lotfi Hermi of University of Arizona and Dr Mohamed B. H. Rhouma of Sultan Qaboos University on the use of Laplacian-based features in pattern recognition.

• System for Indexing and Retrieving Historical Documents (2006-Present)
  28. Sponsor: UWF Summer Research Award and collaboration with researchers at Ecole Nationale d’Ingénieurs de Sfax (ENIS), Tunisia

29. Design and test a system to process, index, and retrieve images of historic documents and artifacts
  • Human Face Detection Using Morphological Neural Nets (2005-2006)

30. Sponsor: UWF 2005 Faculty Scholarly and Creative Activity Award


32. Sponsor: UWF Summer Research Grant

33. Design and test a neural network-based system to detect human faces in visual scenes
  • Remote Acquisition Storage System (2000)

34. Sponsor: NASA-Langley Research Center (LaRC)

35. Designed and tested autonomous microphones to detect and transmit sound waves of military airplanes flying over residential areas. The project was part of an effort to redesign the shape of airplane wings to reduce noise levels.
  • Mine Detection and Neutralization (1997-1999)

36. Sponsor: Army Research Office

37. Helped in the design and testing of a landmine detection system that uses ground penetrating radar and neural networks to detect buried metal and plastic landmines. The
The system was able to detect 98% of the landmines. The system was selected among 6 competing designs proposed by top universities including MIT
- Application of Fuzzy Logic to Automatic Target Recognition (1996-19998)

38. Sponsor: Office of Naval Research
39. Helped in the design and testing of an automatic detection system that detects tanks in laser radar images. The system used a combination of neural networks and fuzzy logic to detect more than 97% of the tanks.
- Image Algebra-Based Local Feature Extraction and Detection of Occluded Vehicles (1995-1997)

40. Sponsor: Eglin AFB
41. Helped in the design and testing of an automatic detection system that detects tanks and armored personnel carriers in synthetic aperture radar images. The system used a combination of neural networks and fuzzy logic to detect more than 90% of the targets.
- Pattern Recognition via Fuzzy Morphological Networks (1993-1994)

42. Sponsor: MU Research Board
43. Helped in the design of a new type of neural networks called shared-weight morphological neural networks. They proved to be superior to other networks in detecting particular patterns and shapes.

44. Sponsor: ERIM
45. Designed a system to recognize handwritten zip codes on mail pieces. The system was able to correctly recognize more than 96% of the handwritten numerals.

PUBLICATIONS

Book Chapters

Refereed Journal Papers

Refereed Conference Papers


Poster Papers


Technical Reports


Mentored Projects

[21] Samir Ibrahim, Leary Tomlin Jr., and David Oshana, "Internet Controlled Refrigeration Systems (ICRS)," (2011) (Team applied for US patent based on their project)

AWARDS
- Faculty Excellence in Teaching Award, University of West Florida, 2013
- Electrical and Computer Engineering Award, Student Scholars Symposium, University of West Florida, 2014
- Teacher of the Year Award, IEEE Student chapter, University of West Florida, 2004-2005
- Computer Science Paper Award, SEASTARS Conference, University of West Florida, 2008
- Electrical and Computer Engineering Paper Award, SEASTARS Conference, University of West Florida, 2009
- Electrical and Computer Engineering Paper Award, SEASTARS Conference, University of West Florida, 2010
- Five Year Service Certificate, University of West Florida, 2008
PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

- **Vice Chair**, IEEE North West Florida region (2004)
- **Senior Member**, IEEE
- **Member**, HKN Honors Society
- **Faculty Advisor**, IEEE student chapter, University of West Florida
- **Faculty Advisor**, Florida Engineering Society student chapter, University of West Florida
- **Advisory Committee**, Int’l Conference on Advanced Technologies for Signal and Image Processing (2014)
- **Program Committee**, Int’l Conference on Neural Computation Theory and Applications (2013)
- **Organizing Committee Member**, International Conference on Intelligent Technologies (2003)
- **Organizing Committee Member**, International Conference on Artificial and Computational Intelligence for Control, Automation and Decision in Engineering and Industrial Systems (ACIDCA2000)
- **Session Chair**, Intelligent Pattern Analysis III, the International Conference on Machine Intelligence (ICMI2005)
- **Reviewer for:**
  46. Neural Computing and Applications
  47. Information Sciences Journal
  48. IEEE Transactions on Fuzzy Systems
  49. IEEE Transactions on Geoscience and Remote Sensing
  50. Journal of Optics Communications
  51. Journal of Electronic Imaging
  52. Journal of Fuzzy Sets and Systems
  53. Journal of Optical Engineering
  54. IEEE International Conference on Neural Networks
  55. IEEE International Conference on Fuzzy Systems
  56. IEEE Southeast Conference
  57. SPIE Conference on Image Algebra and Morphological Image Processing
  58. International Conference on Artificial and Computational Intelligence for Control, Automation and Decision in Engineering and Industrial Systems
  59. International Conference on Machine Intelligence
  60. International Conference on Education and Information Systems, Technologies and Applications
  61. International Conference on Intelligent Technologies
  62. International Conference on Neural Computation Theory and Applications
  63. International Conference on Pattern Recognition Applications and Methods

COMMITTEE MEMBERSHIPS

- **Member**, Strategic Academic Visioning and Empowerment (SAVE) team
- **Chair, Internal Stakeholders Subcommittee**, SAVE
- **Member, STEM Steering Committee**
- **Member, STRIDE Committee**
- **Chair/Member, Faculty Search Committees**
- **Member, Department Curriculum Committee**
- **Member, ABET Accreditation Committee**
• Chair, Outcome Assessments and Retention Committee
• Chair, Bylaws Revision Committee
• Coordinator, with the Computer Science Department
• Member, FWB Expansion Committee
• Member, College of Arts and Science Council (Fall 2003)
Curriculum Vitae

Name:
John W. Coffey
Professor, Department of Computer Science

Office Address:
Computer Science Department
The University of West Florida
Building 4, Room 434
Pensacola, FL, 32514

Telephone Number: 850-474-3183
E-mail Address: jcoffey@uwf.edu
Web Site http://www.uwf.edu/~jcoffey

Educational Background:
The University of West Florida.
Ed.D. Curriculum and Instruction,
Computer Science Option,
M.S. Computer Science/Software Engineering,
April, 1992.
B.S. Systems Science,
December, 1989.
The College of William and Mary.
B.S. Psychology, June, 1971.

Employment History at the University of West Florida

The Department of Computer Science
- Professor (2010 - present)
- Associate Professor (2005 - 2009)
- Assistant Professor (2001 - 2004)

Teaching Assignments
1. Programming Languages - a core course in the CS option. A survey of procedural, object-oriented, functional and logic-based programming languages, Chomsky hierarchy of formal languages, stack and heap memory management issues, parameter passing modes, etc.
2. Advanced Programming Languages - a 6000-level graduate course. Topics include program translation, intermediate representations and code generation, code optimization, concurrency issues for programming language design, and abstract grammars, translational, operational, denotational and axiomatic semantics.
3. Science of Computing - an introductory core course for CIS and CS options. Developed the original CCR for the course and the original instructional materials in conjunction with the Instructional Media Center.
4. Data Structures - core course for CIS and CS options and for two of the five IIT options. Basic data structures including arrays, vectors, linked lists, trees, graphs,
searching and sorting algorithms, hashing and heaps. Significant emphasis is placed on programming.


6. **Introduction to CIS** - a required course for CIS, CS, and IIT options and for ECE students. An intermediate course in C++ programming.

7. **Exploring the Internet** - an online course that utilizes the Internet to teach about using the Internet. Over a 2 year period, administered delivery of the course to 1800 students.

8. **UNIX and C** - an upper level elective that required C programming, basic UNIX operating system use, scripting and system calls.

9. **Pascal Programming** - a beginning course in the Pascal programming language. Previously a required prerequisite for the CIS and CS options.

10. **Software Engineering** - a core course in the CIS and CS options. This course focuses on issues pertaining to the analysis, design and implementation of large software systems requiring co-ordination among team members.


13. **Service Oriented Architecture Seminar**: A seminar in Web services and SOA. The course dealt with topics including BPEL, Ajax/Dojo, Database, service interoperability, service semantics and others.


15. **Data Structures and Algorithms II** – for Computer Science, CS option majors. Includes height-balanced trees, recurrences, counting principles, heaps and priority queues, greedy algorithms, probabilistic algorithms, and dynamic programming.


17. **Network-Centric Software Applications** – offered concurrently with Distributed Software Architecture II.

18. **C++ Programming**: an introductory course in C++ taken by a variety of majors.

19. **Graduate Project**: Capstone project for CS/SE Master's students

20. **Undergraduate Capstone Project** – capstone experience for CS/CIS/SE/IT

21. **CS and SE Seminar** – graduate research class

22. **CS Foundations: Algorithms and Data Structures** - A fast-paced course introducing foundational knowledge in computer science for graduate students.

**The Institute for Human and Machine Cognition**

**Major projects:**

- **NUCES Project.** Researcher, Programmer and Knowledge Engineer. Created knowledge bases, designed and programmed (25,000 loc in C) a Multimedia graphical interface for a large scale expert system. Created
Multimedia Model Editor and Model Player, the precursor to CMapTools. Database supervisor.

- **Project Quorum** - Programmer on large scale joint project with IBM Latin America. Automated file transfer between OS-2 machines by writing Rexx and C programs to UUencode and upload the files to mainframes, send files across SNA networks, UUdecode and download files on the other end.

- **Knowledge Preservation at NASA Lewis Research Center** - Elicited knowledge regarding Launch Vehicle System Integration from senior NASA engineers and represented that knowledge in multimedia knowledge models. Demonstrated three different arrangements of the knowledge to target various audiences and uses.

- **Multimedia Knowledge-Based Systems** - Name withheld at request of sponsoring agency. Demonstrated knowledge modeling of experts in a knowledge domain using CMapTools. Worked in Washington D.C.

- **Models & Prototypes for Improving the Effectiveness of Distance Learning & Computer-Mediated Learning**, Chief of Naval Aviation and Training (CNET).
  - Phase 1 - Researcher, Knowledge Engineer. Created a demonstration performance support system for electronics technicians.
  - Phase 2 - Researcher, Designer, Programmer. Created a pedagogical adjunct to iCMapTools. Extended this large object-oriented computer program in JavaTM.

- **Navy Meteorological and Oceanographic Facility** - METOC. Assisted in performing Cognitive Work Analysis of the installation, and in the creation of new ways to represent meteorological data.

**Consultancy Work:**
- NASA Glenn Research Center, Cleveland, OH.
- Electric Power Research Institute
- Dolan DNA Learning Center, Cold Spring Harbor, NY
- The University of North Florida, Florida Institute of Education, Jacksonville, FL
- Boeing, Houston, TX
- The United States Navy, Dahlgren, VA.
- Southern Company, Birmingham, AL.
- Gulf Power, Pensacola, FL.
- Commander's Predictive Environment, US Navy

**Research/Creative Activities**

**Refereed Journal Publications**


**Technical Reports**


the Commanders’ Predictive Environment. A Technical Report prepared for the
Commander’s Predictive Environment group of the Air Force Research Laboratory,
Wright-Patterson AFB, OH.

Practitioner Knowledge. SCS HR Concept Mapping for Gulf Power. Pensacola, FL.

Academic Program Review. (2006). Department of Computer Science, Five Year
Program Review. Division of Academic Affairs, The University of West Florida,
Pensacola, FL.

Coffey, J.W., Boling, C., Guidrey, K, Harrison, W., Howell, C., Platt, R., & Redding, C.
Council for Information Technology. The University of West Florida, Pensacola, FL.

Power Industry: Activities, Achievements, and Challenges. Technical Report to the
Electrical Power Research Institute (EPRI), Palo Alto, CA.

Novak, J.D. (2003). A Summary of Literature Pertaining to the Use of Concept
Mapping Techniques and Technologies for Education and Performance Support.

Technical Report submitted to the CNET, Pensacola, FL.


Paradigm of Human-Centered Computing: Local Expertise in Weather Forecasting.


Center. Technical report, Glenn Research Center, Cleveland, OH.

Functional Images with NUCES: Nuclear Cardiology Expert System. Institute for
Human and machine Cognition, 11000 University Pkwy, Pensacola, FL 32514.

Refereed Conference Proceedings

Coffey, J. W. (2017). A Study of the Use of a Reflective Activity to Improve Students’
Software Design Capabilities. SIGCSE ’17: Proceedings of the 2017 ACM SIGCSE
Technical Symposium on Computer Science Education. pp 129-134. ISBN: 978-1-
4503-4698-6.

Technological and Human-Centered Approaches. Proceedings of IMCIC’17,
0.

Recommender System. Proceedings of IMCIC’16, The Seventh Internatinal
Conference on Complexity, Informatics and Cybernetics. pp 14 - 17. ISBN: 978-1-
941763-35-3.

Educational, Informational, and Communication Technology. Post-Conference
Proceedings of Keynote talks of the 6th International Multi-Conference on

Dissectors for a Proprietary Communication Protocol, Proceedings of IMCIC’15,


Invited Book Chapters


Refereed Book Chapters


Posters

Presentations
Coffey, J.W. No Warranty Express or Implied: Why do We Have so many Problems with the Computer Systems that Pervade our Lives. A Keynote talk presented at IMCIC’17, The 8th International Multi-Conference on Complexity, Informatics and Systemics. March 24-27, 2017, Orlando, FL.


Coffey, J.W., (2004). Concept Map-based Knowledge Modeling. A Presentation at the
Revised December 8, 2016

8th World MultiConference on Systemics, Cybernetics and Informatics. (SCI2004), Orlando, FL, July 18-21, 2004,


Coffey, J.W. (2002). LEO: A Learning Environment Organizer for the Presentation of Knowledge Models as Courses, CNET Workshops, IHMC, Pensacola, FL


  - Louisiana State University – The Chancellor of the University and Faculty of the Department of Computer Science, Baton Rouge, LA.
  - Florida State Police, Tallahassee, FL.
  - The State of Florida Board of Regents, Orlando, FL.
  - Sopha Medical, Incorporated, Columbia, MD.
  - The Board of Trustees, The University of West Florida, Pensacola FL.


Panels

Digital Concept Maps as Tools for Organizing and Managing Knowledge and Information Resources. (2006). Moderator: Dr. Tanja Keller, Knowledge Media Research Center, University of Tubingen, Germany, Panelists: Dr. Geoff Briggs, CMEX, NASA Ames Research Center, Dr. Mauri Ahlberg, University of Helsinki, Dr. Pat Hayes, Institute for Human and Machine Cognition. CMC 2006, September 7, San Jose, Costa Rica.

Panel on Knowledge Elicitation. (2006). Moderator: Dr. Robert R. Hoffman, Institute for Human and Machine Cognition, Panelists: Dr. Josianne Basque, Tele-Universite, Canada, Mr. Ed Dotson, NS Navy, Dr. Tristan Johnson, Florida State University, Dr. Patrick Moore, University of West Florida. CMC 2006, September 7, San Jose, Costa Rica.


Workshops - Participated in the preparations and delivery of the following:

**Palo Alto Research Center (PARC) Subcontract** - two-day workshop in which we demonstrated joint knowledge elicitation with Dr. Joseph Novak to researchers from PARC. Elicited knowledge from intelligence analysts on a knowledge domain of interest.

**NASA Blue Sky Workshop** - Facilitated multi-day group knowledge generation sessions via Concept Mapping for researchers from IHMC and NASAS Ames Research Center


**Introduction to Concept Mapping using the CmapTools Software** CMC2004 Workshop. Created and presented the workshop.

**CAS Technical Planning Retreat** - Planning for the College of Arts and Sciences School of Science and Engineering (SSE) organizational unit.

**CmapTools training** Multi-day training workshops presented to:

- **The Electrical Power Research Institute (EPRI)** - Human Resources personnel trained in the use of CmapTools for the preservation of tacit and undocumented knowledge. 17 trainees.

- **Chief of Naval Education and Training (CNET)** – Four workshops in which 80 employees of NETPDTC were trained in the use of CmapTools for Human Performance documentation purposes.

- **Naval Education and Training Command (NETC)** The CFFC group of the reorganized command.

- **PATS** – "Enhancing Educational Experiences with Concept Maps and CmapTools" workshop delivered to 12 teachers from the PATS Center, Pensacola, FL.

- **TVA/BNF** - Served as the lead for a two-day workshop held for participants in a pilot study within Tennessee Valley Authority (TVA). Coordinated by EPRI.
- One of the nation's intelligence agencies. Details withheld at the request of the sponsoring agency.
- **The University of North Florida, Florida Institute of Education (FIE).** Organized and delivered two workshops on using CmapTools to build knowledge models of Intermediate Algebra.
- **Gulf Power and Southern Company.** Follow-on workshop to the knowledge elicitation work performed with two experts.

**Task Force Excel, Norfolk, VA.** Three-day workshop to elicit knowledge pertinent to professional career advancement for SignalMen, Boatswain’s Mate and Quartermaster.

**Missions to Mars** multi-day workshop with representatives of NASA Ames Research Center. Elicited knowledge on alternative exploratory missions to Mars including:
- humans remain on earth
- humans to orbit (including Libration point)
- humans to the surface of Mars


**Patent**

**Memberships in Professional Organizations**
- Association of Computing Machinery.
- American Association of Artificial Intelligence
- UWF chapter of Association of Information Technology Professionals.
- Chapter (Faculty) Advisor, UWF chapter of AITP. (1992-present)
- Chairman, Speaker Committee, AITP. (1990-1992)
- President, UWF chapter of AITP. (1990-1991)

**Professional Development**
- Teaching Portfolio Workshop 2001.
- Teaching Partners, 2008-2010.
- Sabbatical, Spring, 2017.

**Projects and Grants**

<table>
<thead>
<tr>
<th>Externally Funded</th>
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<tbody>
<tr>
<td>Principal Investigator - Knowledge Acquisition at NASA LeRC. $66,500.00</td>
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<tr>
<td>Principal Investigator - Eliciting Knowledge and Reasoning of Southern Company Experts. $18,800.00</td>
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</tbody>
</table>
• Co-Principal Investigator - A Knowledge Engineering, Team-Based Approach to Introducing Security Assurance Cases $25,000.00
• Co-Principal Investigator – Knowledge Modeling for Supporting Program Comprehension Blue Cross, Blue Shield Associates. $50,000.00
• Co-Principal Investigator - Medical Educational Research Foundation (MERF). $23,000.00
• Served as Critical Personnel on many grants through IHMC including the following (these grants totaled millions of dollars):
  o Quorum: Collaboration without Boundaries - IBM World Trade Corporation
  o Models & Prototypes for Improving the Effectiveness of Distance Learning & Computer-Mediated Learning - Chief of Naval Training
  o Multimedia Knowledge-Based Systems - sponsoring agency name withheld by request of the agency
  o Navy Meteorological and Oceanographic Facility - METOC.

Internally Funded
• Wrote and defended annual proposals to the Student Government Association (SGA) for support for the Student Chapter of AITP. $54,218.00
• University of West Florida Faculty Summer Research Grant (2006) $6,250.00
• University of West Florida Research Assistantship Grant (2006) $1,500.00

Dissertation and Thesis Work

Security Clearance

Knowledge Modeling Projects
• Nuclear Cardiology Expert Systems (NUCES). The original project for which the IHMC was created and funded. Elicited knowledge about the interpretation of radionuclide images of the left ventricle. Built knowledge-based consultation component to accompany the knowledge model.
• Launch Vehicles Systems Integration (LVSI) Performed at NASA Glenn Research Center. Created three separate multimedia elements that were integrated to create one knowledge model on launch vehicles systems integration
• El-Tech – Knowledge model and consultation system for Navy electronics technicians
• STORM-LK – Large-scale knowledge model of local weather forecasting knowledge that is necessary to be a forecaster in Pensacola, FL.
• KMD – The EPRI – Southern Company Knowledge Modeling Demonstration Project. Birmingham, AL.
• Drought - a project with the National Weather Service eliciting and modeling knowledge on conditions giving rise to droughts in the Southeastern United States.
• Department of Defense - information withheld at request of clients.
• Leadership – information withheld at request of clients.
• **EPRI/TVA Pilot Project** - Knowledge Modeling for Institutional Memory Preservation pertaining to air effluent analysis and turbine maintenance/overhaul.

• **Social Network Analysis** - knowledge modeling pertaining to uses of Social Network Analysis. Department of Defense.

• **Boeing, Houston.** Demonstration Knowledge modeling for Institutional Memory Preservation pertaining to:
  - Space Shuttle Ascent Guidance
  - Space Station On-orbit Thermo-structural Analysis.

### Institutional Service

**Service to the Profession**

- Editorial Board – Journal of Educational Technology Systems
- Reviewer:
  - Computers and Education
  - International Journal of Expert Systems
  - International Journal of Human-Computer Studies.
  - IEEE Expert
  - Advances in Computer-Supported Learning (Book)
  - Educational Research Review
  - External reviewer for MEng degree, Alireza Kashian, School of EEE, Nanyang Technological University, Singapore


- Program Committee CMC:
  - CMC 2004 - The First Int'l Concept Mapping Conference, Pamplona, Spain.
  - CMC 2008 - The Third Int'l Concept Mapping Conference, Estonia and Finland.
  - CMC 2012 –The Fifth Int'l Concept Mapping Conference, Malta.
  - CMC 2014 –The Sixth Int'l Concept Mapping Conference, Sao Paulo, Brazil.
  - CMC 2016 - The Seventh Int'l Concept Mapping Conference, Estonia.

- Advisory Committee for Computer Science and Information Technology, Pensacola State College, 1994-present.
- Twenty Five Gallon Blood Donor, Northwest Florida Regional Blood Center
- Judge, Florida Panhandle Regional Science and Engineering Fair (many years).

### To the University

- University Faculty Personnel Committee. Chair, 2016 – 2017.
- Member Office of Undergraduate Research Committee.
- Chair, Information Technology Planning and Advisory Committee (ITPAC) – the successor to UPC-IT (2009-present).
- University Web Advisory Committee (WAC)
- Student Technology Fee Committee member (ITEP and Systemic)
- ITPAC Subcommittee to develop a prioritization plan for strategic IT projects.
• University Planning Council for Information Technology (UPC-IT), University of West Florida (2001-2008). Participated in the formulation of the UWF IT Mission Statement and Strategic Plan.
• Co-chair, UPC-IT (2004-2008)
• UPC-IT Subcommittee for Classroom Technology
• UPC-IT Subcommittee for formulation of a framework for Student Access to Technology Fees (SATF).
• Chair, UPC-IT Subcommittee to study the feasibility of adopting Open Source Software
• UPC-IT Strategic Plan Subcommittee.
• UPC-IT Minimum Hardware Standards Subcommittee
• UWF Web Presence Committee
• Search Committee, Assistant Professor, Digital Media, Department of Art.
• Search Committee for Coordinator, Career Development Services (2001).
• Division of Engineering Technology External Review
• Focus Group on the University Portal
• Tutor, Minority Retention Center, UWF. (1988).
• Tutor, Literacy Volunteers of America, Escambia County. (1991-1992)
• LEAD program - Students' Perspectives: The Educational Experience at UWF

To the College
• Co-chair, Intelligent Systems and Robotics PhD Planning Committee (2016-present)
• Teacher Incentive Program Committee Judge, 1998
• LAS Planning for Science and Technology building (2006-2007).

To the Computer Science Department
• Chair, Department Tenure and Promotion Committee (2017).
• Member, Tenure and Promotion Committee (2005-present)
• Chair, Nystul Search Committee 2016-2017.
• Scholarship Committee (2000-2001).
• Scholarship Committee Chair (2001 - present).
• Faculty advisor to the UWF chapter of DPMA/AITP. (1993 - Present)
• Computer Science Department Ad Hoc Curriculum Design Group (2001-2002)
• Computer Science Department representative for Saturday Open House and Undergraduate Orientations (in many years, 1996-present).
• Academic Advisor, Department of Computer Science (1993 to 1999).
• Faculty advisor to the UWF chapter of DPMA/AITP. (1993 - Present)
• ASC Open house (Fort Walton Beach, August 2006)
• Faculty Search Committee for two Lecturers (2005)
• Chair, Five-year self-study, Department of Computer Science
• Community outreach: visited area high schools to promote programs in computing.
• CS Department committee to revise CIS curriculum, IT curriculum (2006-07-08).
• Mentoring Committee, Drs. Lakshmi Prayaga, Laura White, Dallas Snider, Ezhil Kalamannan

Dissertation Committee Member
• John Bolyard

**Computer Science Department Honors Project Advisor**
• Travis Zimmerman
• Keegan Anderson

**Master’s Thesis Advisor**
• Gilbert Ryan Petris
• Eric Golden

**Thesis Commitees**
• Steven Satterfield – Defended May, 2012
• Bradley Swain – defended August, 2009
• Carlos Perez – defended Fall, 2009
• LaTreva Pounds - defended 8/2001
• Michelle Buckalew - defended 1/2001
• Tony Croy - prospectus completed
• Sherri Sentelle - defended 1/2002
• Ian Schneller - defended 4/2002

**Graduate Project Advisor**
• Eric Golden
• Rick Peterson
• Ryan Defour
• Scott Frame
• Laura Dulin
• Jiri Just
• Michael Webb
• Johnnie Odom
• Darcy Lewis
• Tim Giertz

**Electrical and Computer Engineering Department Honors Committee Member**
• Laura Solari
• Jeffrey Gibson

**Directed Individual Studies** - Supervised the following students:
• Andre King
• Thomas Roberson
• Halston Pate
• Eric Golden
• Mithal Ashraf
• Robert Peters
• Roger Hawthorne
• Travis Zimmerman
• Gary Register
• Chris Ayers
• Chad Carff
• Bart McDonough
• Brian Watson
• Michael Webb
• James Holstead
• Paul Groth
• James Dodd
• Bruce Edgar
• Timeyo Banda
• Eric Larin
• Curtis Williams
• Alice Banks

Awards and Honors
• Lifetime member, Upsilon Pi Epsilon
• As Chapter Advisor to UWF chapter of AITP (Association of Information Technology Professionals):
  Coordinated many trips to regional and National competitions.
• Distinguished Teaching Award, UWF (1997).
• Golden Apple Award as Teacher of the Year, UWF. (1997)
• Teacher Incentive Program Award, (1997).
• Outstanding Student Organization Advisor, UWF, (1993 - 1994)
• Outstanding Student, Division of Computer Science, UWF. (1989)
• Honor Society of Phi Kappa Phi. (1989).
• Who's Who Among Students at American Colleges and Universities. (1991)
• Summa Cum Laude graduate of UWF.
• President's List, UWF. (every semester of Undergraduate studies)
• Graduate Scholarships: Division of Computer Science, UWF; Pensacola Chapter of DPMA.
• Dean's List, The College of William and Mary.
Eman M. El-Sheikh – Curriculum Vitae

Center for Cybersecurity and
Department of Computer Science
University of West Florida
11000 University Parkway
Pensacola, FL 32514
Tel: 850-474-3074
Fax: 850-474-3156
E-mail: eelsheikh@uwf.edu

Education

<table>
<thead>
<tr>
<th>Degree</th>
<th>Institution</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Ph.D., Computer Science</td>
<td>Michigan State University</td>
<td>East Lansing, MI</td>
</tr>
<tr>
<td>2002</td>
<td>Area: Artificial Intelligence</td>
<td></td>
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<tr>
<td></td>
<td>Advisor: Jon Sticklen</td>
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</tr>
<tr>
<td></td>
<td>Title: An Architecture for the Generation of Intelligent Tutoring Systems from Reusable Components and Knowledge-Based Systems.</td>
<td></td>
</tr>
<tr>
<td>M.Sc., Computer Science</td>
<td>Michigan State University</td>
<td>East Lansing, MI</td>
</tr>
<tr>
<td>1995</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.Sc., Computer Science</td>
<td>American University in Cairo</td>
<td>Cairo, Egypt</td>
</tr>
<tr>
<td>1992</td>
<td>Summa Cum Laude (Highest Honors)</td>
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</table>

Employment

<table>
<thead>
<tr>
<th>Position</th>
<th>Institution</th>
<th>Location</th>
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<tbody>
<tr>
<td>Director</td>
<td>Center for Cybersecurity</td>
<td>Pensacola, FL</td>
</tr>
<tr>
<td>2/2016 – present</td>
<td>University of West Florida</td>
<td></td>
</tr>
<tr>
<td>Professor</td>
<td>Department of Computer Science</td>
<td>Pensacola, FL</td>
</tr>
<tr>
<td>8/2014 – present</td>
<td>University of West Florida</td>
<td></td>
</tr>
<tr>
<td>Interim Director</td>
<td>Center for Cybersecurity</td>
<td>Pensacola, FL</td>
</tr>
<tr>
<td>7/2015 – 2/2016</td>
<td>University of West Florida</td>
<td></td>
</tr>
<tr>
<td>Associate Dean</td>
<td>University of West Florida</td>
<td>Pensacola, FL</td>
</tr>
<tr>
<td>8/2015 – 8/2016</td>
<td>College of Science and Engineering</td>
<td></td>
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<tr>
<td>8/2014 – 7/2015</td>
<td>College of Science, Engineering and Health</td>
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<tr>
<td>1/2010 – 7/2014</td>
<td>College of Arts and Sciences</td>
<td></td>
</tr>
<tr>
<td>Associate Professor</td>
<td>Department of Computer Science</td>
<td>Pensacola, FL</td>
</tr>
<tr>
<td>8/2009 – 7/2014</td>
<td>University of West Florida</td>
<td></td>
</tr>
<tr>
<td>Interim Associate Dean</td>
<td>College of Arts and Sciences</td>
<td>Pensacola, FL</td>
</tr>
<tr>
<td>8/2009 – 12/2009</td>
<td>University of West Florida</td>
<td></td>
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<tr>
<td>Assistant Professor</td>
<td>Department of Computer Science</td>
<td>Pensacola, FL</td>
</tr>
<tr>
<td>8/2001 – 7/2009</td>
<td>University of West Florida</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistant</td>
<td>Computer Science &amp; Engineering Department</td>
<td>East Lansing, MI</td>
</tr>
</tbody>
</table>
Instructor
Computer Science & Engineering Department
Michigan State University
East Lansing, MI

Research Assistant
Intelligent Systems Lab
Computer Science & Engineering Department
Michigan State University
East Lansing, MI

Teaching Assistant
Computer Science & Engineering Department
Michigan State University
East Lansing, MI

Software Engineer
1/1993 – 6/1993
Automatic Systems Corporation
Abu Dhabi, UAE

Programmer
IBM
Cairo, Egypt

Awards and Appointments

Member, Innovation Coast Board of Directors
November 2016 – present
Innovation Coast, Pensacola, Florida.

Principal Investigator and Project Director
August 2012 – present
NSF Faculty ADVANCE Program, University of West Florida.

Visiting Research Scientist
Spring 2011 – present
Florida Institute for Human and Machine Cognition, Pensacola, Florida.

Achievement Award

Mentor
2015 Association of American Colleges and Universities (AAC&U) Project Kaleidoscope (PKAL)
PKAL Summer Leadership Institute, Claggett, MD, July 20 – 26, 2015.

Friend of Diversity Award
Awarded to ADVANCE Program by the Office of Equity, Diversity and International Affairs, University of West Florida.

President’s Award for Leadership in Diversity
April 2014
University of West Florida.

Administrative Fellow
Fall 2008 – Summer 2009
College Arts and Sciences Dean’s Office, University of West Florida.

I worked with the Dean on college goals and developed and managed Teaching Partners, a program to promote the development and exchange of best teaching practices, and facilitate peer reviews of teaching. My responsibilities also included overseeing the college’s Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium, Faculty Activity Reports, and various assessment initiatives.

Instructional Strategies and Assessment Fellow
Spring 2007 – Summer 2009
The Center for University Teaching, Learning, and Assessment,
University of West Florida.

I planned and facilitated events for the development of faculty skills in teaching, learning, and assessment, including five mini-conferences, several workshops and roundtable discussions. I worked with faculty to develop useful and sustainable instructional and assessment practices.

**Paper and Poster Awards**


**Best Computer Science Award, 2010 SEASTARS:** Cantero, F. M. and El-Sheikh, E. Can your Robot Move? Navigation and Obstacle Avoidance. The 7th Annual Scholars of Engineering,


Upsilon Pi Epsilon Induction 2008 International Honor Society for the Computing Disciplines


I was selected as a 2003 IEEE Faculty Fellow. Fellows are selected using a rigorous peer-reviewed application process to promote and acknowledge their involvement in the development of innovative practices for Computer Science and Engineering education.

Distinguished Teacher 2003 Nominated for the Distinguished Teacher Award at the University of West Florida, Spring 2003.

Thoman Fellow 1999 I was selected as a Thoman Fellow at Michigan State University for 1999 – 2000. The Thoman Fellow is awarded to outstanding and motivated international scholars completing their doctoral studies, who show achievement and promise in scholarship and leadership. I participated in seminars, outreach programs, community service, global awareness events, and volunteer work.
Best Paper Award
1999

Paper was selected as a best paper at 12th International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, Cairo, Egypt.


Research and Scholarly Activities

Books


Refereed Journal Publications and Book Chapters


Goehring, G., Reichherzer, T., El-Sheikh, E., Snider, D., Wilde, N., Bagui, S., Coffey, J., and


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1 Authors are listed in alphabetical order. All authors contributed equally to manuscript.

**Refereed Conference Proceedings Publications**


Conference Presentations and Posters


Transforming STEM Higher Education Conference, Nov. 6 – 8, 2014, Atlanta, GA.


& Technology Annual Research Symposium, University of West Florida, Pensacola, FL, April 15, 2010.


Invited Talks and Panels


El-Sheikh, E. Building Bridges & Pathways – Innovative Solutions for Expanding the Cybersecurity Workforce, Panel Discussion at the Florida Center for Cybersecurity Third Annual Conference, Tampa, FL, October 25, 2016.

El-Sheikh, E. Women in Cybersecurity, Panel Discussion at ITEN Wired, Pensacola Beach, FL, October 11, 2016.


El-Sheikh, E. Undergraduate Research as a High Impact Practice, Invited Presentation, University of West Florida Office of Undergraduate Research Faculty Workshop, Pensacola, FL, October 2, 2015.


El-Sheikh, E. Mentoring Undergraduate Students in Research, CUTLA Workshop, March 11, 2011.


**Conferences, Symposia and Workshops Organized**


Co-Coordinator, 2013 UWF Scholars Week and NSF ADVANCE Annual Showcase, University of West Florida, Pensacola, FL, April 23 – 26, 2013.


Technical Reports
El-Sheikh, E. Building Institutional Programs to Advance Science and Engage Learners through Multi-Disciplinary Strategies and Community Outreach.

Dissertation

Research Activities
Faculty Advisor, AI Research Group & Lab, UWF, Spring 2010 – present.
Launched and currently serve as the faculty advisor for the AI Research Group to promote interest and develop expertise in AI research among undergraduate and graduate students.

Member, Service-Oriented Architecture Research Group, UWF, 2011 – 2016.

Research Grants and Proposals
Funded
PI, 2017 NSA CAE Regional Center for South East Region, Total budget: $196,829.
PI, 2017 Florida Cyber Pathways, Florida Center for Cybersecurity, Total budget: $93,127.
PI, 2017 NSA GenCyber Program, Pathways to Cyber, Total budget: $89,150.
PI, 2016 Pathway to Cyber Program, Florida Center for Cybersecurity, Total budget: $30,000.
PI, Advancing STEM at UWF: Improving Retention, Faculty Development and Visibility for STEM Programs. 2013 Pace Academic Development Award Proposal, Total budget: $20,700.
PI, Intelligent Learning Environment for Foundational Computer Science Topics, Research and Sponsored Programs, University of West Florida, September 2012 – August 2013, Total budget: $7,297.
Co-PI, Knowledge Modeling for Supporting Program Comprehension, Reichherzer, T., Coffey, J., El-Sheikh, E., White, L., Wilde, N. Blue Cross Blue Shield Association via the Security and Software Engineering Research Center (S2ERC), December 2011 – August 2013. $23,315


Co-PI, 2011 UWF Instructional Technology Enhancement Program, Title: “Enhancement and Adaptation of the TellusPoint™ Platform for Undergraduate Education in the Humanities and Sciences,” Total budget: $33,780.

2007 Summer Research Award, Research and Sponsored Programs Office, University of West Florida, Title: “Adapting Problem-Based Learning for Computer Science Education: A Collaborative Approach for Teaching Foundational Programming.”

2005 Graduate Research Assistantship Award, Office of Research and Graduate Studies, University of West Florida, Title: “Using Problem-Based Learning in Computer Science Education.”

2004 Summer Research Award, Office of Research and Graduate Studies, University of West Florida, Title: “Development of an Adaptive Tutoring System for Teaching Object-Oriented Programming.”

2003/2004 Scholarly and Creative Activity Faculty Award, Office of Research and Graduate Studies, University of West Florida.

National Alumni Association Faculty Grant, University of West Florida, Fall 2003.

2003 Summer Research Award, Office of Research and Graduate Studies, University of West Florida.

2002 Summer Research Award, College of Arts and Sciences, University of West Florida.

2002 Enhancing Teaching and Learning with Technology Award, Center for University Teaching and Learning, University of West Florida.

Submitted / Under Review


Co-PI, Florida Regional Alliances and Multistakeholder Partnerships to Stimulate Cybersecurity Training and Workforce Development, 2016 NIST RAMPS Program, Total budget: $200,000.

PI, Pathway to Cyber Program, 2016 NSA/NSF GenCyber Program, Total budget: $70,640.

Co-PI, REU Site: Cybersecurity and Large Scale Data Analytics, 2014 NSF CISE REU Program, Total budget: $286,822.

Co-PI, Integrating Research Experiences in UWF Courses to Increase Student Retention and Success. 2014 Pace Academic Development Award Proposal, Total budget: $26,000.


Co-PI, 2012 Dept. of Education Strengthening Institutions Program. Title: UWF STEM Scholars, Budget: $2,002,324.


Co-PI on proposal submitted to 2011 Next Generation Learning Challenges Wave 2 Program, Title: “iShareHistory: An Adaptive and Transformative Model for Improving College Readiness and Completion,” Total budget: $250,000, Pre-proposal was one of 40 out of 240 selected nationally for the final round.

Lead PI on proposal submitted to 2007 UWF Pace Academic Development Fund, Title: “A Program to Increase Enrollment and Retention of Women in the University of West Florida's Computing Disciplines,” Total budget: $25,845.


Teaching Experience

University of West Florida
Taught and developed course materials for:

CAP4601 Artificial Intelligence
Developed and taught a new undergraduate Computer Science course, which is designed to give students an introduction to core AI principles, programming techniques, and applications.

CAP4053 AI Programming for Interactive Environments
Developed and taught a new undergraduate Computer Science course, which is a follow-up course to CAP4601 to give students additional experience in using AI techniques for developing interactive environments including games, simulations, and educational environments.

COP2253 Java Programming (face-to-face and online)
A foundational programming course for the CS, CIS, and IIT programs that focuses on foundational object-oriented programming skills using Java.

COP2334 C++ Programming
A required course for CIS and IIT programs that focuses on core C++ programming skills.

COP4020 Programming Languages (face-to-face and online)
A core course for CS, CIS, and IIT programs that addresses design and implementation of a programming language and surveys various programming paradigms, including procedural, object-oriented, functional, and rule-based languages.

COP4331 & COP4331L Object-Oriented Programming & OOP Lab
An upper-level required course for CS students that focuses on the analysis, design, and
development of object-oriented systems.

COP4601 Software Systems
An upper-level project-based elective for CS and CIS programs that focuses on issues related to developing a large-scale software system, including software engineering, technical skills, and project management.

COP4905/CAP4905 Directed Study
COP4905 and CAP4905 are upper-level electives for the CS and CIS programs. I supervised several students towards the development and evaluation of intelligent, large-scale software systems.

CAP5600 Artificial Intelligence (face-to-face and hybrid)
A required graduate course for CS students and an elective for SE students that focuses on foundational AI topics including AI theory, search techniques, knowledge representation and reasoning, machine learning, and applications.

CEN6930 Advanced Topics in Software Engineering
An elective for the CS and SE graduate programs. I supervised a graduate student on a software engineering project focusing on the development of an intelligent agent-based system for news content recommendation.

COT6931 Computer Science Project
A project-based capstone course for CS graduate students. I supervised several graduate students on computer science projects focusing the application and integration of artificial intelligence principles and techniques for the development of intelligent and agent-based software systems.

CIS6971 Computer Science Thesis
A thesis-based capstone course for CS graduate students. I supervised a graduate student on a thesis focusing on real-world route reconstruction from natural language-based path descriptions. I supervised another graduate student, whose thesis focused on the use of causal modeling to discover effective connectivity among brain regions.

CEN5915 Graduate CS Research and COP5905/COP6905 Directed Study
Electives for the CS and SE graduate programs. I supervised several graduate students in researching current issues in artificial intelligence and interactive learning environments, and towards developing related software systems.

Doctoral Dissertation Committees
John Bolyard

Master’s Projects and Theses Supervised
Omer Useche (2015). An Intelligent System for Measuring Attention Levels of Students in Online Course Environments.
Steven Satterfield (2012). The Application of Structural Case-Based Reasoning to Activity
Recognition in the Smart Home (committee member).


**Undergraduate and Graduate Capstone Projects and Directed Studies**

John Baggs
Chad Carff
John Carff
Matthew Digman
Matthew Kirkland
James Horsley
Jeff Hunter
Carlos Perez
James Spencer
Douglas Stephen
Bradley Swain
Laura Taylor
Mikayla Timm
Stephen Weathers
Michael Wooten

**Michigan State University**

CSE131 Introduction to Technical Computing (taught and developed materials)
A lower-level university-wide requirement that focuses on basic programming and problem solving skills.

CSE440 Introduction to Artificial Intelligence (teaching assistant and lab instructor)
An upper-level elective for CS students that focuses on the foundations of AI including theoretical issues and applications.

CSE449 Senior AI Capstone (teaching assistant and lab instructor)
A senior project-based capstone project that allows students to use their knowledge and skills to develop a software system for a real-world problem.
### Service

#### Departmental Service

Member, ABET Committee, Spring 2016 – present

Member, Ph.D., Intelligent Systems Committee, 2016-17

Member, Cyber Security Faculty Search Committee, Fall 2013 – present

Member, Cyber Security Program Development Team, Spring 2013 – Spring 2014

Member, Faculty Mentoring Committee, Fall 2012 – present

Member, Office Assistant Search Committee, Summer 2012

Member, Faculty Search Committee, Spring 2012 – present

Member, Advisor Search Committee, Spring 2012

Chair/Member, Assessment Committee, Fall 2008 – present

Assessment Coordinator, Spring 2004 – Summer 2008

Member, Tenure and Promotion Committee, Fall 2009 – present

Member, Computer Science Recruitment and Outreach Committee, Fall 2008 – Spring 2012

Member, Computer Science Curriculum Committee, Fall 2001 – present

Member, Scholarship Committee, Spring 2002 – Spring 2013

Member, Chair Search Committee, Spring 2005

Member, Online Working Group, Spring 2005

Course Coordinator for COP2253: Java Programming, Fall 2001 – Spring 2009

Course Coordinator for COP2334: C++ Programming, Fall 2002

Member, Ad Hoc Curriculum Design Group, 2001 – 2002

#### College and University Service

Chair, Cybersecurity Steering Committee, Fall 2015 – present

Co-Chair, Cybersecurity Chairs Group, Fall 2015 – present

Chair, CAE Work Group, Fall 2015 – present
Chair/Member, Distinguished Faculty Service Award Selection Committee, 2014 – 2016

Chair, CSEH Marketing Coordinator Search Committee, Spring 2015

Member, CSEH Office Administrator Search Committee, Spring 2015

Member, Graduation Intervention Work Group, Fall 2014 – Summer 2015

Member, 50th Anniversary Celebration Academic Experiences Committee, Fall 2014 – Spring 2015

Judge, Student Scholars Symposium, Spring 2015 – present

Judge, Northwest Florida Regional Science Fair, Fall 2014 – present

Co-Chair, IT Performance Funding Faculty Work Group, Spring 2013 – Summer 2013

Chair, CAS Chairs Mentoring Group, Fall 2012 – Spring 2013

Member, Chairs Handbook Work Group, Fall 2012 – Spring 2013

Member, Assistant Vice President for Enrollment Management Search Committee, Spring 2013

Member, Graduate Thesis Supervision Task Force, Fall 2012 – Spring 2014

Chair, External Advisory Board, NSF ADVANCE Program, Fall 2012 – present

Chair, Internal Steering Committee, NSF ADVANCE Program, Fall 2011 – present

Chair and Coordinator, STEM Steering Committee, Spring 2012 – Spring 2015

Co-Coordinator, Northwest Florida Regional Science Olympiad, Spring 2012

Member, CAS Administrative Assistant Search Committee, Fall 2012

Member, Faculty Search Committee, School of Psychological and Behavioral Sciences, Spring 2012

Member, Professional Education Council, Fall 2011 – Spring 2013

Member, Responsible Conduct of Research Task Force, Spring 2011

Member, Graduate School Administrative Assistant Search Committee, Spring 2011

Member, SACS Fifth-Year Compliance Report Committee, Fall 2010 – Spring 2011

Member, Web Advisory Committee, Fall 2010 – present

Member, Academic Programs Assessment Council, Spring 2010 – Spring 2015
Member, Graduate Council, Fall 2009 – Fall 2013

Member, Academic Appeals Committee, Fall 2009 – Spring 2015

Member, CUTLA Advisory Board, Fall 2009 – Spring 2015

Coordinator, Research Connections Program, Fall 2009 – Spring 2015

Co-Coordinator, Teaching Partners Program, Fall 2008 – Spring 2010

Judge, BEST Robotics Competition, 2008 – 2014

Member, School of Science and Engineering Building Grand Opening Planning Committee, Spring 2009 – Spring 2010

Member, Dean of Libraries Search Committee, Summer – Fall 2009

Member, Associate Vice President for Diversity and International Studies Search Committee, Spring 2009

Volunteer, Explore UWF Open House, Spring 2002 – present

Coordinator, Scholarship of Teaching and Learning Interest Group, Fall 2007 – Spring 2009

Member, Quality Enhancement Plan Evaluation Committee, Spring 2007 – Spring 2013

Member, College of Arts and Sciences SEASTARS (Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium) Advisory Committee, Spring 2007 – Spring 2008

Member, University Planning Council, UWF, Fall 2003 – Spring 2006

Member and Co-Chair, UPC Marketing, Enrollment Growth and Retention Committee, Fall 2003 – Spring 2006

Chair, International Affairs Committee, Fall 2004 – Spring 2006

Member, International Affairs Committee, Fall 2003 – Spring 2006

Volunteer, UWF Faculty Phone-a-thon, Spring 2003, Spring 2004

Volunteer, UWF Majors Fair, Spring 2003, Spring 2004

Volunteer, UWF Career Fair, 2002 – present (employer recruitment, student awareness, etc.)

Lead Judge, Annual Florida Panhandle Science and Engineering Fair, UWF, 2002

**Community and Professional Service**

Chair, FC2 State University System Cybersecurity Curriculum Committee, Spring 2015 – present
Volunteer/mentor, CyberThon, 2016 – present
Mentor, local area high school students, 2002 – present


Program Committee Member, IDEA 2016: 2nd International Workshop on Digital Enterprise Architecture and Engineering, Leipzig, Germany, July 6 – 8, 2016.


Program Committee Member, EHST 2015: 9th International Symposium on eHealth Services and Technologies, Rhodes, Greece, Sep. 17 – 18, 2015.


Session Chair, KEOD 2014: The International Conference on Knowledge Engineering and Ontology Development, October 21 – 24, 2014, Rome, Italy.

Session Chair, ICAI’14: The 2014 International Conference on Artificial Intelligence, July 21 – 24, 2014, Las Vegas, NV.


Steering Committee Member, 2014 International Conference on Computational Science and Computational Intelligence, Las Vegas, NV, March 10 – 13, 2014.

Session Chair, Web Services Session, The Fifth International Conferences on Advanced Service Computing, Valencia, Spain, May 27 – June 1, 2013.

Math volunteer, Creative Learning Academy, 2013
Sunshine Math volunteer teacher, Cordova Park Elementary School, 2006 – 2011

Session Chair, Novel Applications, ICAI’10: The 2010 International Conference on Artificial Intelligence, Las Vegas, NV, 2010

Reviewer, The International Conference on Society and Information Technologies (ICSIT), 2010

Contributor and reviewer, Big Java textbook, Cay Horstmann, Wiley Publishers, 2009

Program Committee Chair and Reviewer, The 7th International Conference on Education and Information Systems, Technologies, and Applications (EISTA), 2009
Reviewer, The 13th World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI), 2009

Reviewer, The 2nd International Conference on Knowledge Generation, Communication and Management (KGCM), 2008

Session Chair, The 6th International Conference on Education and Information Systems, Technologies, and Applications (EISTA), 2008

Session Chair, The 5th International Conference on Education and Information Systems, Technologies, and Applications (EISTA), 2007

Associate Editor and Reviewer, International Journal of Learning, 2005

Program Committee Member and Reviewer, Annual Florida Artificial Intelligence Research Society (FLAIRS) Conference, 2005


Reviewer, Programming Languages and Methodologies textbook, Robert Schalkoff, Jones & Bartlett Publishers, 2004


Program Committee Member and Reviewer, Annual Florida Artificial Intelligence Research Society (FLAIRS) Conference, 2003

Program Committee Member and Reviewer, International Parallel and Distributed Systems Conference, 2002

Professional Development

Broadening Participation Workshop, University of West Florida, August 11 - 13, 2015.


Student Success and Retention Workshop, University of West Florida, October 14, 2014.

STEM Retention Workshop, University of West Florida, February 28, 2014.

Research Design and Evaluation Workshop, Center for University Teaching, Learning, and Assessment, University of West Florida, February 1, 2013.

Preparing for Tenure and Promotion Workshop, Center for University Teaching, Learning, and Assessment, University of West Florida, January 18, 2013.

Communication & Leadership Skills: Dealing With Conflict Workshop, Center for University Teaching, Learning, and Assessment, University of West Florida, November 2, 2012.


Assessment Workshops by Dr. Peggy Maki, Center for University Teaching, Learning, and
Assessment, University of West Florida, April 16, 2008.

Studio E Faculty Development Workshops for online course development, University of West Florida, summer 2007.

Assessment Workshops by Peggy Maki, Center for University Teaching, Learning, and Assessment, University of West Florida, 2006 – 2007

Student Assessment Workshop by Barbara Walvoord, Center for University Teaching, Learning, and Assessment, University of West Florida, Spring 2005

NSF CISE Grant Workshop, Office of Research and Graduate Studies, University of West Florida, Spring 2005

Compleat Professor Workshops, Center for University Teaching and Learning, University of West Florida, 2001-2002

  Workshop 1: UWF and Florida SUS Orientation, Fall 2001
  Workshop 2: Teaching Effectiveness, Spring 2002
  Workshop 3: Research and Scholarly Activities, Spring 2002

Enhancing Teaching with Technology Workshop, Center for University Teaching and Learning, UWF, 2001-2002
THOMAS REICHHERZER

RESEARCH GOAL AND INTERESTS

My main goal is to conduct research in artificial intelligence methods and their applications to build intelligent systems. I am also interested in systems and networks and related security issues. My broad research interests include machine learning, natural-language processing, information retrieval, knowledge representation, human computer interaction, and, more recently, sensor networks and simulation of networks.

PROFESSIONAL HISTORY

August 2016 – now: Associate Professor, The University of West Florida, Pensacola, FL.

August 2010 – July 2016: Assistant Professor, The University of West Florida, Pensacola, FL.

2009 – 2010: Visiting Assistant Professor, The University of West Florida, Pensacola, FL.

2007 – 2009: Director of Technology, Enkia Corp., Atlanta, GA.

2001 – 2007: Research Assistant & Associate Instructor, Indiana University, Bloomington, IN.

2006: Consultant, Pragati Synergetic Research, Cupertino, CA.


1991 – 1994: Teaching Assistant, University of Ulm, Germany.

1991: Consultant, Artificial Intelligence Research Institute, Ulm, Germany.

ACADEMIC HISTORY

2001 – 2009, Indiana University, Bloomington, IN
Certificate in Human-Computer Interaction (HCI).

1994 – 1996, University of West Florida, Pensacola, FL
M.S., Computer Science, GPA 4.0.

1990 – 1996, University of Ulm, Ulm, Germany
Diplom, Informatic, GPA 3.45.

PERSONAL DATA

Professional membership: ACM, AAAI.
RECENT RESEARCH PROJECTS

**Wearable Devices Security (2015-present)**

**Description:** The use of wearable devices is on an upward curve with a range of devices now available from a number of manufacturers. The security and privacy issues relating to the hardware, software and the data collected by these devices, however, have not been studied extensively. A lack of standards and regulations has contributed to various proprietary protocols being used which may or may not provide adequate protection to a user’s data.

**Work:** In this project, hardware and software security aspects of different kinds of wearable devices and their communication protocols will be studied. Various attack vectors and different kinds of attacks will be investigated. Specifically, attacks on the integrity, confidentiality and the privacy of the data will be examined. Finally, solutions and patches for security against the attack vectors and vulnerabilities will be proposed. Research results have been published.

**Smart Home Technology (2010-present)**

**Description:** This project aims to build smart home systems consisting of sensor networks and smart software systems integrated into homes to monitor human activities in the home for the purpose of improving the safety and the quality of life of all people living in the home.

**Work:** In collaboration with graduate and undergraduate students, several methods were developed to capture and analyze sensor data for recognizing human activities and to monitor individuals and suggest corrective actions in situations where activities may cause harm. Different methods of human-machine interaction are being investigated and applied to provide just-in-time support. A prototype sensor network and middleware services have been built and tested. Additional middleware services are being developed to perform activity recognition and an evaluation of the entire system by end users will be conducted soon. The research is described in several publications.

**Knowledge Modeling in Health Care (2011-2014)**

**Description:** This project aims to build a knowledge model on health care provider knowledge to promote a better understanding of provider information and collaboration among stakeholders. It also pursues capturing semantic information on health care data models to support software development & maintenance activities.

**Work:** This is a sponsored research project by Blue Cross Blue Shield. In collaboration with domain experts an initial knowledge model was built using concept mapping and published for collaboration with users of provider information within the organization. Furthermore, semantic information of a complex health care data model was captured via concept mapping and used in subsequent case studies to examine how semantic information can facilitate software development and foster greater understanding of a domain. The research is described in several publications.

**Intelligent Search Tools to Support Maintenance of Service Oriented Architecture (SOA) Composite applications (2010-2013)**

**Description:** This project focuses on the development of intelligent search tools that mine artifacts of Service Oriented Architecture (SOA) composite applications to provide support for software engineers.

**Work:** Several case studies have been conducted to identify abstractions of SOA artifacts that support software maintenance activities. A search tool, called SOA Miner, has been developed that extracts and indexes abstractions from SOA artifacts and visualizes them. Rule-based methods have been applied and evaluated to automate the extraction process. The research is described in several publications.
TEACHING EXPERIENCE

Associate Professor
**University of West Florida**, Pensacola, FL, Fall 2016 – Spring 2017
- Data Structures & Algorithms (face-to-face, graduate & undergraduate sections)
- Algorithm and Program Design (face-to-face, undergraduate)
- Operating Systems (face-to-face, graduate & undergraduate sections)
- Computer Networks (face-to-face, graduate & undergraduate sections)
- Linux System & Network Administration (face-to-face, undergraduate)

Assistant Professor
**University of West Florida**, Pensacola, FL, Fall 2010 – Spring 2016
- Advanced Computer Systems (face-to-face, graduate)
- Advanced Computer Systems & Networks (face-to-face, graduate section)
- Computer Graphics & Simulation (face-to-face, graduate & undergraduate sections)
- Data Structures & Algorithms (face-to-face, undergraduate)
- Algorithm and Program Design (face-to-face, undergraduate)
- Introductory Programming in Java (face-to-face & online, undergraduate)
- Operating Systems (face-to-face & online, graduate & undergraduate sections)
- Computer Networks (face-to-face & online, graduate & undergraduate sections)
- Linux System & Network Administration (face-to-face, undergraduate)

Visiting Assistant Professor
**University of West Florida**, Pensacola, FL, Fall 2009 – Summer 2010
- Operating Systems (face-to-face & online, graduate & undergraduate sections)
- Computer Networks (face-to-face & online, graduate & undergraduate sections)
- Software Testing and Verification (online, graduate)
- Introductory Programming in Java (face-to-face, undergraduate)

Adjunct Instructor
**University of West Florida**, Pensacola, FL, Fall 2008 – Summer 2009
- Operating Systems & Networks (online, graduate)

Associate Instructor
**Indiana University**, Bloomington, IN, Fall 2004 – Spring 2005
- Computer Models of Symbolic Learning (face-to-face, graduate)
- Introduction to Artificial Intelligence (face-to-face, undergraduate)

Adjunct Instructor
**University of West Florida**, Pensacola, FL, Summer 1997 – Fall 1998
- Introduction to Computer Graphics (face-to-face, undergraduate)
- Object-Oriented Programming in Java and C++ (face-to-face, undergraduate)

Teaching Assistant
**University of Ulm**, Ulm, Germany, Spring 1991 – Fall 1994
- Computer Organization (face-to-face, undergraduate)
- Database systems (face-to-face, undergraduate)

TECHNICAL SKILLS
- Programming languages: Java, C, C++, VB, Scheme, Lisp, Prolog, Python, Perl.
Web programming: J2EE, PHP, GWT.
Development of GUIs for Windows and Java platforms (MFC, AWT, Swing).
Web languages: HTML, XML, WSDL.
Semantic Web technology: OWL, RDF, Protégé, Pellet.
Virtualization platforms: VMWare Workstation, vSphere Hypervisor
Experienced with design and usage of database systems including MySQL, ObjectDB.
Client-server application development using TCP/IP, UDP, RMI, JDBC.
Experienced user of IDEs including Visual Studio .NET, Eclipse, Netbeans.
Experienced user of version control systems (CVS, SVN) and software testing tools including white box testing tools.
Experience in system administration of UNIX and Windows platforms.
Knowledgeable of HCI design and evaluation principles.

PROFESSIONAL SERVICES

Program Committee
- Sixth International Conference of Concept Mapping, 2014, Santos, Brasil.
- Fifth International Conference of Concept Mapping, 2012, Valetta, Malta.

Refereed Journals and Conference Proceedings

Invited Guest Lectures
- The University of West Florida, March 2015.
- The University of West Florida, September 2012.
- Blue-Cross Blue Shield, Colombia, South Carolina, 2012.
- The University of West Florida, November 2009.
- Doctoral Colloquium, i-Conference, October 2006.
- Exploiting Structure in Concept Maps for Intelligent Support, Vanderbilt University, August 2006.
- Collaborative Knowledge Capture in Ontologies, Indiana University, April 2006.
- Understanding Knowledge Models: Modeling Concept Importance in Concept Maps, Indiana University/Purdue University, April 2006.

Conference Presentations
- 32nd International Conference on Computers and Their Applications (CATA 2017), Honolulu, HI, 2017
- The 2014 International Conference on Security and Management (SAM), Las Vegas, Nevada, 2014.
- 4th International Workshop on Principles of Engineering Service-Oriented Systems.
- 5th International Conference on Concept Mapping, Valetta, Malta, 2012.
- 9th International Florida Artificial Intelligence Conference, Key West, Florida, 1996.

**GRANT APPLICATIONS**

- Security in IoT Environments, Security and Software Engineering Research Center (S²ERC), 2016.
- REU SITE: Cybersecurity and Large-Scale Data Analytics, National Science Foundation, 2014.
- Semantic Data Modeling for System & Data Comprehension, Security and Software Engineering Research Center (S²ERC), 2013.
- Knowledge Modeling for Supporting Program Comprehension, Security and Software Engineering Research Center (S²ERC), 2012.
- Remote Interactive Learning Environments, National Science Foundation, 2012.
- Erosion Simulation and Modeling, Earth Ethics (non-profit), 2011.
- Monitoring Market Intelligence for Retail Consumers and Producers, National Science Foundation, Information and Communication Technologies, 2009.
- Data access and security in a need-to-share environment, SBIR Information Systems, 2008.
- Towards a Semantic Web for Instruments, Sensors, and other Real-Time Data Sources, IIS – Information Integration & Informatics, National Science Foundation, 2006.
SELECTED PUBLICATIONS

Journal Articles


Peer-reviewed Proceedings


Book Chapters


CURRICULUM VITAE
DR. SIKHA S BAGUI

(850)474-3022 (Office)

PERSONAL INFORMATION

Citizenship: US citizen

ACADEMIC BACKGROUND

Ed.D, Curriculum and Instruction. Major: Math/Stat/Science/Computer Science,

MBA, IS specialization, University of Toledo, Toledo, Ohio, August, 1986.
BS, Cuttington University, Monrovia, Liberia, January 1984.

(Also completed one year (1990-1991) in Ph.D. program at Kent State University, Kent, Ohio, MIS specialization).

ACADEMIC EXPERIENCE

Professor, Department of Computer Science, University of West Florida, Pensacola, Florida (August 2013 – present)

Associate Professor, Department of Computer Science, University of West Florida, Pensacola, Florida (August 2008 – August 2013).

Assistant Professor, Department of Computer Science, University of West Florida, Pensacola, Florida (August 2004 – Aug 2008).

Lecturer, Department of Computer Science, University of West Florida, Pensacola, Florida (August 1999-August 2004).

Adjunct Instructor, Department of Computer Science, University of West Florida, Pensacola, Florida (Jan 1992-August 1999).

Graduate Teaching Assistant, Department of Management Information Systems, Kent State University, Kent, Ohio, (August 1990-June 1991).

Instructor, Department of Information Systems, University of Toledo, Toledo, Ohio (June 1986-August 1990).

ADMINISTRATIVE EXPERIENCE

Chair, Department of Computer Science, University of West Florida, Pensacola, FL (August 2012 – August 2017)

Founding Director, Center for Cybersecurity, University of West Florida, Pensacola, FL (January 2014 – March, 2015)
Interim Associate Chair, Department of Computer Science, University of West Florida, Pensacola, Florida (January 2011 – July 2012).

Program Director, CIS/IT, MSA/DBA, MS/CS-DB, Department of Computer Science, University of West Florida, Pensacola, Florida (Fall 2007 – August 2012).

COURSES TAUGHT


COURSES TAUGHT BY SEMESTER AT UWF

Summer 2017:
   COT6931 -- Project

Spring 2017:
   COP5725 – Database Systems
   COT6931 – Project

Fall 2016:
   COP5725 – Database Systems

Spring 2016:
   COP5725 – Database Systems

Fall 2015:
   COP5725 – Database Systems

Fall 2013:
   COP5725 – Database Systems

Spring 2013:
   COP5725 – Database Systems

Fall 2012:
   COP5725 – Database Systems

Summer 2012:
   COP5725/COP4710 – Database Systems
   CAP4770/CAP5771 – Data Mining

Spring 2012:
   COP5725 – Database Systems
   CAP5771 – Data Mining
Fall 2011:
  COP5725 – Database Systems (2 sections)
  CAP4770/5771 – Data Mining

Summer 2011:
  COP4710 – Database Systems
  CGS3464 – Visual Programming

Spring 2011:
  COP5725 – Database Systems
  CAP5771 – Data Mining

Fall 2010:
  COP5725 – Database Systems (2 sections)
  CAP4770/5771 – Data Mining

Summer 2010:
  COP4710 – Database Systems (2 sections)
  CGS3464 – Visual Programming

Spring 2010:
  COP5725 – Database Systems
  CAP4770 – Data Mining

Fall 2009:
  CAP4770 – Data Mining (Undergraduate)
  CAP5771 – Data Mining (Graduate)
  COP5725 – Database Systems

Summer 2009:
  COP4710/COP5725 – Database Systems
  CGS3559 - Exploring the Internet

Spring 2009:
  COP4710 – Database Systems
  COP6727 – Advanced Database Systems
  COP5725 – Database Systems

Fall 2008:
  COP4710 – Database Systems (online) – 2 sections
  COP5725 – Database Systems (online) – 2 sections
  CAP4770 – Data Mining
  CAP5771 – Data Mining

Spring 2008:
  COP4723/5775 – Database Administration (online)
  COP5990 – Seminar in SOA (online)
Fall 2007:
CAP4770 – Data Mining (online)
COP4710 – Database Systems
CSG3464 – Visual Programming

Summer 2007:
COP4710 – Database Systems (online)

Spring 2007:
COP4710 – Database Systems
COP5715 – Advanced Databases (Developed and delivered online)

Fall 2006:
COP4710 – Database Systems
COP4710 – Database Systems (Developed and delivered online)
CGS3464 – Visual Programming Using Visual Basic.NET

Summer 2006:
COP4710 – Database Systems

Spring 2006:
COP5715 – Advanced Databases
COP4710 – Database Systems
COP4173 – Advanced Visual Programming (in VB.NET)

Fall 2005:
COP5715 – Advanced Databases
CGS3464 – Visual Programming Using Visual Basic.NET
COP2253 – Java Programming

Summer 2005:
COP4710 – Database Systems
CGS3464 – Visual Programming Using Visual Basic.NET

Spring 2005:
COP4710 – Database Systems
COP5715 – Advanced Database Systems
COP2253 – Java Programming

Fall 2004:
COP2253 – Java Programming (3 sections)

Summer 2004:
COP4710 – Database Systems
CGS3464 – Visual Programming Using Visual Basic.NET

Spring 2004:
COP4710 – Database Systems
CGS 3464 – Visual Programming Using Visual Basic.NET
COP5715 – Advanced Databases and Data Mining

Fall 2003:
COP4710 – Database Systems
CGS3464 – Visual Programming Using Visual Basic.NET

Summer 2003:
COP4710 – Database Systems
CGS3464 – Visual Programming Using Visual Basic.NET

Spring 2003:
COP4710 – Database Systems (3 sections)
COP5715 – Advanced Databases and Data Mining.

Fall 2002:
COP4710 – Database Systems (2 sections)
COP3530 – Data Structures and Algorithms (in C++)
ISM4113 – Business Systems Design

Summer 2002:
COP4710 – Database Systems
COP3530 – Data Structures and Algorithms (in C++)

Spring 2002:
COP4710 – Database Systems (2 sections)
COP4990 – Advanced Visual Programming (in Visual Basic)
COP5715 – Advanced Database Systems

Fall 2001:
COP4710 – Database Systems (2 sections)
COP3530 – Data Structures and Algorithms (in C++)

Summer 2001:
COP4710 – Database Systems
COP3530 – Data Structures and Algorithms (2 sections) (in C++)

Spring 2001:
COP 3530 – Data Structures and Algorithms (2 sections) (in C++)
COP 4710 – Database Systems
CGS 3464 – Visual Programming (in Visual Basic)

Fall 2000:
COP 3530 – Data Structures and Algorithms (2 sections) (in C++)
COP 4710 – Database Systems (2 sections)

Summer 2000:
COP 3530 – Data Structures and Algorithms (in C)
COP 4710 – Database Systems
Spring 2000:
COP 3530 – Data Structures and Algorithms (2 sections) (in C)
COP 4710 – Database Systems
CIS 3512 – Systems Documentation

Fall 1999:
COP 3530 – Data Structures and Algorithms (in Pascal)
COP 4710 – Database Systems
CGS 3800 – Multimedia Systems
CGS 3464 – Visual Programming (in Visual Basic)

RESEARCH INTERESTS

Database and SQL, database design and architecture, object-oriented databases, web databases, data mining, pattern recognition, statistical computing, computers in Education.

PUBLICATIONS

Books


**International Editions (books)**


**Journal Articles (Published/Accepted)**


40. Cox, A., Guzman, I., Crommer, K., **Bagui, S.** Virtual world, Virtual Reality, and Augmented Reality: Different Types, Different Users, Different Purchase Intentions, submitted to *Journal of Virtual Worlds Research*.

**Referred Publication in Encyclopedia**

Refereed Proceedings


Book Chapters


**Other Publications**


**Papers re-printed as Book Chapters**


**Workshops**


**Grant Reports**


**Submittals/In preparation**


**Series Editor for** “Foundation for Database Design Books” for CRC press.

**Books in this series:**


**Editorial Board member:**
i. International Journal of Data Analysis Techniques and Strategies (IJDATS).
ii. World of Computer Science and Information Technology Journal (WSCIT).
iv. Inventi Journals, http://www.inventi.in


2. Associate Editor:

Technical Committee Member
   International Conference on Intelligent Systems and Control (ISCO’2013).

REVIEWED Articles for
   IEEE Transactions on Data and Knowledge Engineering
   IEEE Transactions on Parallel and Distributed Computing
   Data and Knowledge Engineering
   Pattern Recognition Letters
   International Business Schools Computing Quarterly
   Encyclopedia of Database Technologies and Applications
   Iranian Journal of Electrical and Computer Engineering (IJECE)
   Handbook for Technology Management
   ACMSE
   International Journal of Data Analysis Techniques and Strategies (IJDATS)
   International Journal of Knowledge Engineering and Data Mining (IJKEDM)
   Consortium for Computing Sciences in Colleges (CCSC)
   International Journal of Computer Engineering Research (IJCER)
   Data Science Journal
   Journal of Systems and Software
   International Journal of Intelligent Information and Database Systems (IJIIDS)
   International Journal of Advanced Computer Science and Applications (IJACSA)
   IEEE Computer
   Intelligent Systems and Control (ISCO 2013)
   8th International Conference on Knowledge Generation, Communication and Management: KGCM 2014.
   Information.

Grants for
3. NSF Database Grant for Kennesaw State University, titled: Animated Database Courseware (ADbC), 2009.

Books
2. *Oracle – Physical Database Design* by Don Burleson, for CRC Press.

SELECTED CITATIONS
24. And many more not listed here...

**HONORS & AWARDS**

**Research Awards**
1. Recipient of *2012 Distinguished Research and Creative Activities Award*, UWF.
2. Recipient of *2007 Distinguished Research and Creative Activities Award*, UWF.

**Teaching Awards**
1. Recipient of *Excellence in Teaching and Advising Award*, 2012, UWF.
2. Recipient of *Excellence in Undergraduate Teaching and Advising Award*, 2006, UWF.
3. Recipient of *Teaching Incentive Program (TIP) Award*, 2002-2003, UWF.
4. Recipient of *Excellence in Undergraduate Teaching and Advising Award*, 2001-02, UWF.

**Other**
Nominated for *Distinguished Teaching Award* by Student Government, 2000-01, UWF.
Recipient of Special Summer Graduate Scholarship, 1999, UWF.
Recipient of Delores A. Auzenne Graduate Fellowship, 1999, UWF.

**GRANTS RECEIVED**
1. NSF funded travel grant for Sixth Annual Winter Workshop: Data Mining, Statistical Learning and Bioinformatics, UF Gainesville, January 2004, $400.00.
2. Recipient of University Summer 2005 Research Award of $6250, for proposal entitled, *Pattern Classification in Breast Cancer Data: A Data Mining Approach*.
3. Grant recipient of Graduate Research Assistant, from Graduate Office, UWF, Spring 2006, $1,500.00.
6. **Co-PI**, Florida’s Great North West Workforce Innovation Consortium Grant, North West Florida Computing and Engineering Training Scholarship Program (Fall 2009 – Dec 2010), $1,000,000.


**GRANTS SUBMITTED (Not funded)**


2. PI, Developing a Java Based Parser Software for Converting XML Documents to the ER and EER model and relational databases, for approx $186.800, for 2 years. Submitted: August 2006.


5. PI, Longitudinal Study of Multiple Lipid Indices to Predict Cardiovascular Disease, NIH Challenge Grants, RFA-OD-09-003, $246,413, 1 year. Submitted: April 2009.


8. PI, TAAACCT, Department of Labor (DOL) Consortium grant, $500,000, June 2014

9. Co-PI, H1b Grant, DOL Consortium grant, $500,000, June 2014.


**PRESENTATIONS**

**International Conferences**


8. Ontology-Based SmartLife Enterprise Services Architectures for Big Data in the Cloud, ESOCC 2013, Malaga, Spain, September 11 – 13, 2013.


National Conferences


Regional Conferences/Symposiums


**Other Presentations**

1. Presented several seminars on using Enable, DBASE III Plus, and Lotus 123 to faculty at The University of Toledo in 1987.
2. "*Multimedia, Hypermedia & CD-ROM technology*", presented at Kent State University, April, 1991.
5. “*Mining Association Rules for Insurance Data*”, presented at The Department of Computer Science, University of West Florida, Pensacola, FL, March, 2002.
10. “*Association Rule Mining*”, presented at The Department of Computer Science, Florida A & M University, Tallahassee, FL, July 2003.

**Local Symposium Presentations**

2. “*Discovering Crime Patterns in a State Database*,” presented at SEASTARS 2004, April 19, 2004 (poster session).
5. “*A Java Based Parser Software for Converting XML Documents to ER Diagrams and Relational Databases*,” presented at SEASTARS 2006, April 26, 2006 (poster session).
7. “*SOA and Databases*”, departmental seminar series, Computer Science Department, Sept 8, 2008.

Sessions Chaired/Co-chaired


SERVICE

Departmental Service, Fall 1999 – Spring 2005

1. Departmental committees:
   Undergraduate Committee (1999 - 2005); Online committee (2005); Chair Search committee (Spring 2005 – Summer 2005), Lecturer Search committee (Summer 2005), Java Programming Committee (COP2253) (Fall 2004 – 2005).
2. Course Coordinator commitments:
   Aug 1999 – August 2005:
   Microcomputer Application Packages (CGS 2570), Multimedia Systems (CGS 3994), Web Page Design (CGS 3823), Database Systems (COP 4710), Advanced Database Systems (COP 5715), Desktop Publishing (CGS 2580), Visual Programming (CGS 3464). Developed CCRs for the above courses during this period, and was instrumental in putting Microcomputer Application Packages online for the first time.
   Summer 2001 to August 2005:
   Database Systems (COP4710), Advanced Database Systems (COP5715), Data Structures and Algorithms (COP3530) (Summer 2001 – April 2003)
3. ABET coordinator for review for (Fall 1999 – Fall 2001):
   Database Systems (COP 4710), Data Structures and Algorithms (COP3530).
4. Programming Competitions
5. Directed Independent Study students: Spring 2009 – 3; Fall 2008 – 1; Fall 2007 – 1; Spring – 2; Fall, 2005 – 1; Spring 2005 – 1; Spring 2003 – 1; Summer 2002 – 1; Fall 2001 – 1.

Departmental Service, FALL 2006 – Present

   Certificates developed:


5. Program reviews:
   i. Chair, IT Program Review, 2009-2010.
   ii. Chair, CS Undergraduate and Graduate Program Review, 2013-2014.
   iii. Chair, IT Program Review, 2016-2017.

6. Committees served on:
   a. Search Committees:
      i. Search committee, Office Support Specialist position (in Computer Science), member, Fall 2006
      ii. Chair, CS Faculty Search Committee, Fall 2009, Fall 2010.
      iii. Member, CS Department Faculty Search Committee, Spring, 2012.
      iv. Chair, CS coordinator/advisor search committee, Spring, 2012.
      v. Chair, Cybersecurity Faculty Search Committee, 2013-14.
      viii. Hiring official, IT Techie Search Committee, Fall, 2014.
      ix. Hiring official, Battle Lab Techie Search Committee, Fall 2014.
      x. Chair, CS Faculty Search Committee, 2014-15.
   b. Other committees:
      i. Junior Faculty Mentoring committee (2005 – 2006)
      ii. Departmental Web Page development committee, 2007-present
      iii. SE Curriculum development committee, member, 2007-2008.
      iv. Grand Opening Planning Committee, member, Fall 2009.
      v. Assessment Committee, member, Summer 2010 – present.
      vi. Common Pre-requisites Committee, department representative, Spring 2011 – present.
      vii. Member, CS departmental scholarship committee, 2009-present
      viii. Member, CS departmental assessment committee, 2011-present.
      ix. Chair, CS department strategic planning committee, 2013-present.
      xii. Chair, CS Department Equipment committee, 2014-present.
      xiii. Member, By-Laws Committee, 2014-present.

7. Developed CCRs for:
   i. Advanced Database Systems (COP6727) – graduate database course
   ii. Data Mining (CAP4770/CAP5771) – dual listed data mining course
   iii. Database Administration (COP4723/COP5775) – dual listed course
   iv. CIS major, CIS minor, IT major, IT minor
   vi. MSIT program CCR, 2015.
   viii. MSIT/Database specialization, 2015.

8. New Courses developed:
   1. Advanced Database Systems (COP6727)
   2. Data Mining (CAP4770/CAP5771)
   3. Database Administration (COP4723/COP5775)

9. Online courses developed:
   1. Database Systems (COP4710/COP5725)
1. Advanced Database Systems (COP6727)
2. Data Mining (CAP4770/CAP5771)
3. Database Administration (COP4723/COP5775)
4. Seminar in SOA (COP5990).

10. New Specializations developed:
   1. MSA/DBA (2007).
   2. MS/CS/DB (2010).

11. New Programs developed:
   1. MSIT
      i. MSIT/Database Management (2015).

12. Student recruitment efforts
   2. CS Department Open House: Jan 2007; Nov 2007; Feb 2009; Nov 2009; April 2010;
      June 13, 2011; June 16, 2011; June 20, 2011; June 23, 2011; July 14, 2011; Sept 17,

13. Coordinated, prepared and administered test for student – to test out of Web Page Design Course (CGS3823), Spring 2006.


16. Directed independent study students: (2009-2010): 12; supervised one honors thesis; coordinated 6 internships; and served on one master’s committee.

17. Advising:
   1. 2009-2010: 55 undergraduate advisees and 42 graduate advisees.
   2. 2010 – 2011: 60 undergraduate advisees and 45 graduate advisees
   3. 2011 – 2012: 55 undergraduate advisees and 48 graduate advisees


19. International Collaborations:
   2. Working with Faith University in Turkey, 2014-2015
   3. Working with Reutlingen University in Germany, 2011 – present.

20. Meetings:
   1. Organized and hosted Florida Consortium on Cybersecurity (FC2) at UWF’s Department of Computer Science, Sept 16, 2014.
   2. Committee member, STARTUP weekend, 2013-present.

21. Articulation Agreements
   1. Articulation with Pensacola State College

22. Non-Disclosure Agreements

23. Accreditations and Designations
   1. Professional Master’s Designation (PSM) for Master of Science in Administration, with a specialization in Cybersecurity.
2. CAE, 2015.

**COLLEGE-WIDE SERVICE**

   a. Chair, CAS Graduate Program Committee (CAS Council ad hoc committee), fall 2010.
4. Search Committee, Art Department, member, 2008.
8. Tenure and promotion mentoring committee, Biology, 2012-2013.
9. ATC Search Committee, member, Spring 2011.

**UNIVERSITY-WIDE SERVICE**

3. Faculty Merit Scholarship Program Review Committee, member, 2005 – 2006.
4. Faculty Phone-A-Thon, Admissions Office, UWF, student recruitment, Fall and Spring, 2006.
9. Faculty Video Profile for SSE, Summer 2009.
10. University Faculty Personnel Committee, 2010-2013.
11. Member of STRIDE task force (part of ADVANCE – NSF grant), 2012 – 2015
12. Member of ADVANCE (part of NSF grant), 2012-2015.
13. Member of Chair’s Handbook Composition Committee, 2012-2013.

**COMMUNITY SERVICE**


**PROFESSIONAL SERVICE**

2. Developed Alumni database for Department of Computer Science, UWF, (Fall 2006-Spring 2007).
4. On Advisory Council, Florida Center for Cybersecurity (FC2), 2014-present.
5. Represent Department of Computer Science at Pensacola Chamber of Commerce, 2013-present.
PROFESSIONAL DEVELOPMENT

1. Attended UWF’s Mini-Conference on Best Practices for Active Learning and Student Engagement (March, 2007).
5. Studio-e – Training for Online Teaching, Fall 2007-08.
12. Attended Diversity Recruitment, Hiring and Retention, Department Chair Workshop, Jan 28th, 2015.

PROFESSIONAL MEMBERSHIPS

Member of ACM 2004-05; 2010 – 2012.
Member of UWF Charter of Upsilon Pi Epsilon, an International Honor Society for Computing and Information Disciplines (2006 – present).

STUDENTS GUIDED

Graduate Project Advisor

Thesis Committees
Carlos Perez, 2009-2010

Dissertation Committees (Chair)
Evorell Fridge, 2011-2014

Computer Science Department Honors Project Advisor
Tabatha DeJesus, Fall 2013
Directed Studies and Undergraduate Research
Damien Walker, Developing JAVA based Parser Software, 2005; Utkarsh Shah, Optimizing Queries, Summer 2008; Nicholas Fox, Optimizing Queries, Summer 2008; Clark Mitchell, Malware Analysis - Datamining, Summer 2015; Renan Lordello, SQL Injection Attacks, Summer 2015.

External Dissertation Committee:
Angie Cox, 2015, Trident University.

PostDocs:
Xingang Fang (2015-present)
Appendix H

Biographical Information
Institute for Human and Machine Cognition Researchers
Ken Ford, Ph.D.

Kenneth Ford is Founder and Chief Executive Officer of the Florida Institute for Human & Machine Cognition (IHMC) – a not-for-profit research institute located in Pensacola, Florida. IHMC has grown into one of the nation’s premier research organizations with world-class scientists and engineers investigating a broad range of topics related to building technological systems aimed at amplifying and extending human cognition, perception, locomotion and resilience. Richard Florida has described IHMC as “a new model for interdisciplinary research institutes that strive to be both entrepreneurial and academic, firmly grounded and inspiring ambitious.” IHMC headquarters are in Pensacola with a branch research facility in Ocala, Florida. In 2004 Florida Trend Magazine named Dr. Ford one of Florida’s four most influential citizens working in academia.

Dr. Ford is the author of hundreds of scientific papers and six books. Dr. Ford’s research interests include: artificial intelligence, cognitive science, human-centered computing, and entrepreneurship in government and academia. Dr. Ford received his Ph.D. in Computer Science from Tulane University. He is Emeritus Editor-in-Chief of AAAI/MIT Press and has been involved in the editing of several journals. Ford is a Fellow of the Association for the Advancement of Artificial Intelligence (AAAI), a charter Fellow of the National Academy of Inventors, a member of the Association for Computing Machinery, a member of the IEEE Computer Society, and a member of the National Association of Scholars. Ford has received many awards and honors including the Doctor Honoris Causas from the University of Bordeaux in 2005 and the 2008 Robert S. Englemore Memorial Award for his work in artificial intelligence (AI). In 2012 Tulane University named Ford its Outstanding Alumnus in the School of Science and Engineering. In 2015, the Association for the Advancement of Artificial Intelligence named Dr. Ford the recipient of the 2015 Distinguished Service Award. Also in 2015, Dr. Ford was elected as Fellow of the American Association for the Advancement of Science (AAAS). In 2017 Dr. Ford was inducted into the Florida Inventor’s Hall of Fame.

In January 1997, Dr. Ford was asked by NASA to develop and direct its new Center of Excellence in Information Technology at the Ames Research Center in Silicon Valley. He served as Associate Center Director and Director of NASA’s Center of Excellence in Information Technology. In July 1999, Dr. Ford was awarded the NASA Outstanding Leadership Medal. That same year, Ford returned to private life and to the IHMC.

In October of 2002, President George W. Bush nominated Dr. Ford to serve on the National Science Board (NSB) and the United States Senate confirmed his nomination in March of 2003. The NSB is the governing board of the National Science Foundation (NSF) and plays an important role in advising the President and Congress on science policy
**IHMC Scientist** | **Biographical Summary**  
---|---  
| | issues. In 2005, Dr. Ford was appointed and sworn in as a member of the Air Force Science Advisory Board.  
In 2007, he became a member of the NASA Advisory Council and on October 16, 2008, Dr. Ford was named as Chairman – a capacity in which he served until October 2011. In August 2010, Dr. Ford was awarded NASA’s Distinguished Public Service Medal – the highest honor the agency confers.  
In February of 2012, Dr. Ford was named to a two-year term on the Defense Science Board (DSB) and in 2013, he became a member of the Advanced Technology Board (ATB) which supports the Office of the Director of National Intelligence (ODNI).  
Source: [https://www.ihmc.us/groups/kford/](https://www.ihmc.us/groups/kford/)  
Publications:  
[https://scholar.google.com/citations?sortBy=pubdate&hl=en&user=fl9Fh0AAAAJ&view_op=list_works](https://scholar.google.com/citations?sortBy=pubdate&hl=en&user=fl9Fh0AAAAJ&view_op=list_works)
<table>
<thead>
<tr>
<th>IHMC Scientist</th>
<th>Biographical Summary</th>
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<tr>
<td>Jerry Pratt, Ph.D.</td>
<td>Jerry Pratt (Ph.D., M.Eng., and B.S. degrees from M.I.T. in Computer Science and B.S. degree from M.I.T. in Mechanical Engineering) leads a research group at IHMC that concentrates around the understanding and modeling of human gait and the applications of that understanding in the fields of robotics, human assistive devices, and man-machine interfaces. Current projects include Humanoid Avatar Robots for Co-Exploration of Hazardous Environments, FastRunner Robot, and Exoskeletons for Restoration of Gait in Paralyzed Individuals. Jerry was the team lead for Team IHMC in the DARPA Robotics Challenge (DRC) project. In 2015 IHMC won second place in the DRC finals. In 2013 Team IHMC achieved first place in the Virtual Robotics Challenge and second place in DARPA Robotics Challenge Trials. Before coming to IHMC, Jerry was the President of Yobotics, Inc., a small company that he cofounded in 2000. At Yobotics, Jerry helped develop the RoboKnee, a powered exoskeleton that allowed one to carry large loads while hiking over rough terrain with little effort. Prior to founding Yobotics, Jerry worked at the M.I.T. Leg Laboratory, where he designed, built, and controlled several bipedal robots. His approach of maximizing speed, agility, and biological similarity through the understanding of biological counterparts, is helping to remove the stereotype of robots as being clunky, jerky-moving machines. Source: <a href="https://www.ihmc.us/groups/jpratt/">https://www.ihmc.us/groups/jpratt/</a> Publications: <a href="https://www.ihmc.us/jpratt-publications/">https://www.ihmc.us/jpratt-publications/</a></td>
</tr>
</tbody>
</table>
Peter Neuhaus, Ph.D.

Dr. Peter Neuhaus is a Senior Research Scientist at IHMC. He received his B.S. from MIT and his M.S. and Ph.D. from U.C. Berkeley. After graduating, he spent five years working in industry; he co-founded a start-up company for distributed power generation and then managed robotic factory-automation projects.

In 2003, he joined IHMC. His work focuses on wearable robotic systems and legged robots. Dr. Neuhaus was one of the lead researchers for the DARPA Learning Locomotion project, developing quadrupedal locomotion algorithms for the Little Dog robot; some of the algorithms include dynamic maneuvers, reactive control, and the Xgait. His work on wearable robotic devices centers on lower extremity exoskeleton devices with application for mobility assistance for people with paralysis and paresis, gait rehabilitation, strength and endurance enhancement, and smart exercise devices.

He has developed a series of mobility assistance exoskeletons, including the IHMC Mina exoskeleton, which has demonstrated assisting two persons with paraplegia in walking mobility. After that, he completed the X1 exoskeleton with NASA Johnson Space Center, which offers strength enhancement for able-bodied people in addition to mobility assistance. He has been developing software and assisting in managing the IHMC humanoid robotics effort on the DARPA Robotics Challenge and National Robotics Initiative (NRI) projects.

Source: [https://www.ihmc.us/groups/pneuhaus/](https://www.ihmc.us/groups/pneuhaus/)
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<th><strong>IHMC Scientist</strong></th>
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| Niranjan Suri, Ph.D. | Niranjan Suri is a Research Scientist at the Institute for Human and Machine Cognition (IHMC) and a Visiting Scientist at the US Army Research Laboratory. He received his Ph.D. in Computer Science from Lancaster University, England, and his M.Sc. and B.Sc. in Computer Science from the University of West Florida, Pensacola, FL.  
Niranjan’s current research activity is focused on the notion of Agile Computing – which supports the opportunistic discovery and exploitation of resources in highly dynamic networked environments.  
He also works on Process Integrated Mechanisms – a novel approach to coordinating the behavior of multiple robotic, satellite, and human platforms.  
Niranjan’s other research interests include distributed systems, networking, communications protocols, virtual machines, energy-aware computing, and software agents. In the past, he has worked on several other projects at IHMC, including CmapTools, Tactile Interfaces, and Oz.  
He co-organized the Agents, Interactions, Mobility, and Systems (AIMS) track at the ACM Symposium on Applied Computing from 2002 to 2006. He has taught Undergraduate and Graduate courses in Computer Science at the University of West Florida for 10 years. He has been a principal investigator of numerous research projects sponsored by the US Army Research Laboratory (ARL), the US Air Force Research Laboratory (AFRL), the Defense Advanced Research Projects Agency (DARPA), the Office of Naval Research (ONR), and the National Science Foundation (NSF). He has authored or co-authored over 150 papers, has been on the technical program committees of several international conferences, and has been a reviewer for NSF as well as several international journals.  
Source: [https://www.ihmc.us/groups/nsuri/](https://www.ihmc.us/groups/nsuri/)  
Publications: [https://scholar.google.com/citations?sortby=pubdate&hl=en&user=nNs41i8AAAAJ&view_op=list_works](https://scholar.google.com/citations?sortby=pubdate&hl=en&user=nNs41i8AAAAJ&view_op=list_works) |
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<td>James F. Allen, Ph.D.</td>
<td>Dr. James Allen is Associate Director and a Senior Researcher at the Institute for Human and Machine Cognition in Pensacola. He has had a very distinguished research and teaching career at the University of Rochester where he retains a 50% appointment as the John H. Dessauer Professor of Computer Science. He received his PhD in Computer Science from the University of Toronto and was a recipient of the Presidential Young Investigator award from NSF in 1984. Dr. Allen is an international leader in the areas of natural language understanding and collaborative human-machine interaction. A Founding Fellow of the American Association for Artificial Intelligence (AAAI), he was editor-in-chief of the journal Computational Linguistics from 1983-1993. He was general chair of the Second International conference on Principles of Knowledge Representation held in Boston in 1991, and the Fourth International Conference on AI Planning Systems in Pittsburgh in 1999. Dr. Allen’s research concerns defining computational models of intelligent collaborative and conversational agents that can interact effectively with humans in a wide range of problem solving and analysis tasks. The body of research is unique in its focus on combining what are often treated as separate fields in Artificial Intelligence: knowledge representation and reasoning, language understanding, planning, intention recognition and learning. The TRIPS system is a high-performance generic collaborative agent that can be rapidly adapted to new problem solving domains. In the past decade Dr. Allen and his colleagues have demonstrated versions of TRIPS that engage in many domains, including collaborative planning, data analysis and problem solving, providing advice about a person’s medications, coordinating human-robot teams, and learning from instruction and demonstration. His paper on dialogue-based task learning won the best paper award at the National Conference on Artificial Intelligence (AAAI) in 2007. These systems constitute a well-established track record of managing multi-investigator, multi-institution collaborations that result in large-scale high-performance demonstrations. Dr. Allen has authored numerous research papers in the areas natural language understanding, knowledge representation and reasoning, and spoken dialogue systems. His paper “Maintaining Knowledge About Temporal Intervals” (CACM, 1983) is regularly included in lists of the most-cited papers in Computer Science. He is the author of several books, including the influential textbook Natural Language Understanding, published by Benjamin Cummings in 1987, with a second edition published in 1995.</td>
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<td><a href="https://scholar.google.com/citations?user=FzzeDG4AAAAJ&amp;hl=en">https://scholar.google.com/citations?user=FzzeDG4AAAAJ&amp;hl=en</a></td>
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Bonnie J. Dorr, Ph.D.

Dr. Bonnie J. Dorr, a leading researcher in the field of natural language processing, is joining the Florida Institute for Human & Machine Cognition (IHMC) as an associate director and senior research scientist at IHMC’s Ocala facility.

Natural language processing is a growing research field at IHMC, and Dr. Dorr’s expertise is at the cutting edge. Her extensive research and project management experience includes deep language understanding and semantics, large-scale multilingual processing, and summarization. She and her colleagues have carried out seminal work in cross-language divergence detection, machine translation, paraphrasing and automatic evaluation metrics.

Dr. Dorr joins IHMC from the University of Maryland, where she is Professor Emerita in the Institute for Advanced Computer Studies and the Department of Computer Science. She was an associate dean of the College of Computer, Mathematical and Natural Sciences, and co-founded the Computational Linguistics and Information Processing Laboratory. She was also principal scientist for two years at the Johns Hopkins University Human Language Technology Center of Excellence.

In 2011 she became a program manager at the Defense Advanced Research Projects Agency (DARPA), overseeing research in human language technology. Her significant DARPA projects include Broad Operational Language Translation (BOLT), Deep Exploration and Filtering of Text (DEFT), Multilingual Automatic Document Classification, Analysis, and Translation (MADCAT), and Robust Automatic Transcription of Speech (RATS).

She holds both a Master’s and a Ph.D. in computer science from the Massachusetts Institute of Technology, with a Bachelor’s from Boston University. She is a Sloan Fellow, a NSF Presidential Faculty (PECASE) Fellow, and a former president of the Association for Computational Linguistics. She has served on the Executive Council of the Association for Advancement of Artificial Intelligence (AAAI) and on the Executive Board of the Association for Computational Linguistics (ACL). She was elected AAAI Fellow in 2013, was graduated in the Class of XXXIII of Leadership Florida in 2015, and was elected ACL Fellow in 2016.

Source: [https://www.ihmc.us/groups/bdorr/](https://www.ihmc.us/groups/bdorr/)

Publications:  
[https://scholar.google.com/citations?sortby=pubdate&hl=en&user=jSJEWosAAAAJ&view_op=list_works](https://scholar.google.com/citations?sortby=pubdate&hl=en&user=jSJEWosAAAAJ&view_op=list_works)
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| Matthew Johnson, Ph.D. | Dr. Matthew Johnson is a Research Scientist in the area of human-machine teaming for technologies such as robotics, software agents, and autonomous vehicles, in a variety of domains including disaster response, space applications, aviation, and military operations. Matt came to the Florida Institute for Human & Machine Cognition (IHMC) out of the military where he served as a Naval Aviator, flying both fixed wing aircraft and helicopters. Matt continued in the Navy Reserves retiring after 20 years of service. Matt obtained his undergraduate degree in Aerospace Engineering at the University of Notre Dame (go Irish!) prior to entering the Navy. He obtained a Masters of Science in Computer Science from Texas A&M – Corpus Christi while on active duty. Matt completed his PhD from Delft University in the Netherlands; his thesis proposed a new approach to human-machine system design called Coactive Design. Matt has been a researcher with IHMC – a not-for-profit research institute located in Pensacola, Florida – since 2002. Matt is passionate about making technology more flexible, resilient, and effective, through human-machine teamwork. His research areas include human-machine teaming, human-machine system design, human-centered computing, human-machine interface design, and multi-robot control. Currently Matt is involved in several projects:  
- Working with Xerox PARC to brainstorm human-machine teaming concepts  
- Working with AeroVironment to explore the complexities of people controlling large numbers of vehicles  
- Working with NASA on characterizing the nature of foundational and applied research that need to evolve in order to develop advanced intelligent technologies that reduce cost, enhance performance and improve safety.  
Previous projects include:  
- DARPA Aircrew Labor In-Cockpit Automation System (ALIAS) to develop a robotic copilot (video)  
- Nissan Fleet Management for Autonomous Vehicles  
- The DARPA Robotics Challenge (DRC) for disaster response  
- AFRL Micro-Air Vehicles to develop a novel UAV interface  
- NASA rotorcraft noise minimization  
- OZ flight display  
- DARPA Augmented Cognition project to develop technology to enhance human performance |
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<td></td>
<td>• NASA Human-Robot Teamwork for exploration</td>
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<td>• DARPA Learning Locomotion quadrpedal walking over complex terrain</td>
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<td>• ARL applying semantic technologies to support information gathering and sharing for the soldier</td>
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<td>• ONR Coordinated Operations for multiple people working with multiple robots</td>
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Additional Qualifications

- Commercial Pilot Ratings
  - Airplane Single Engine Land
  - Rotorcraft-Helicopter
  - Instrument Airplane and Helicopter
- Small Unmanned Aircraft Systems

Source: [https://www.ihmc.us/groups/mjohnson/](https://www.ihmc.us/groups/mjohnson/)

Publications: [https://www.ihmc.us/matthew-johnsons-publications/](https://www.ihmc.us/matthew-johnsons-publications/)
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| Dawn Kernagis, Ph.D. | Dr. Dawn Kernagis is a Research Scientist in the area of human performance optimization and risk mitigation for operators in extreme environments, such as those working undersea, at altitude, and in space.  

Dawn came to IHMC from Duke University Medical Center, where her postdoctoral research was funded by the Office of Naval Research (ONR) and the American Heart Association to identify mechanisms and potential therapeutic targets in multiple forms of acute brain injury. She completed her PhD at Duke University as ONR Undersea Medicine’s first Predoctoral Award recipient; her thesis research focused on gene array-based diagnostic development in the settings of undersea medicine and cancer. Dawn obtained her undergraduate degree in Biochemistry at North Carolina State University, where she was a recipient of the Sigma Xi Undergraduate Research Award.  

Dawn has also been a diver and leader with numerous underwater exploration, research, and conservation projects around the world since 1993, including the deep underwater exploration of Wakulla Springs and surrounding caves for over a decade. Based on her extensive underwater exploration, mentorship, and research experience in the diving community, she was selected as an inductee into the Women Divers Hall of Fame, Class of 2016. Dawn was also selected as one of six crew members to join NASA’s 21st undersea mission, NEEMO, in 2016.  

In addition to her research, Dawn is co-host of IHMC’s podcast, STEM-Talk. She is a member of the DoD Biotechnologies for Human Performance Council; a member of Leadership Florida’s Class XXXV; a grant writer for Guardian Group; and a Board of Directors member for NWF Marine EDGE.  

Source: [https://www.ihmc.us/groups/dkernagis/](https://www.ihmc.us/groups/dkernagis/)
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<td>Jonathan Clark, Ph.D.</td>
<td>Jonathan B. Clark is a Senior Research Scientist at IHMC and an Associate Professor of Neurology and Space Medicine at Baylor College of Medicine (BCM) and teaches operational space medicine at BCM’s Center for Space Medicine (CSM). He is also the Space Medicine Advisor for the National Space Biomedical Research Institute (NSBRI). Clark is a Clinical Assistant Professor at the University of Texas Medical Branch in Galveston where he teaches at the Aerospace Medicine Residency. He received a B.S. from Texas A&amp;M University, an M.D. from the Uniformed Services University of the Health Sciences, and is board certified in Neurology and Aerospace Medicine. Clark is a Fellow of the Aerospace Medical Association. He was a Member of the NASA Spacecraft Survival Integrated Investigation Team from 2004 to 2007 and a Member of the NASA Constellation Program EVA Systems Standing Review Board from 2007 to 2010. Clark worked at NASA from 1997 to 2005 and was a Space Shuttle Crew Surgeon on six shuttle missions and was Chief of the Medical Operations Branch. He devoted 26 years to active service with the U.S. Navy, during which he headed the Spatial Orientation Systems Department at the Naval Aerospace Medical Research Laboratory in Pensacola; the Aeromedical Department at the Marine Aviation Weapons and Tactics Squadron One in Yuma, Arizona; and the Neurology Division and Hyperbaric Medicine at the Naval Aerospace Medical Institute. He was a DOD Space Shuttle Support Flight Surgeon covering two space shuttle flights and flew combat medical evacuation missions in Operation Desert Storm with the U.S. Marine Corps. Clark qualified as a Naval Flight Officer, Naval Flight Surgeon, Navy Diver, U.S. Army parachutist and Special Forces Military Freefall Parachutist. He was Chief Medical Officer for Excalibur Almaz, an orbital commercial space company, from 2007 to 2012, and since 2013 is Chief Medical Officer for the Inspiration Mars Foundation. Clark was Medical Director of the Red Bull Stratos Project, a manned stratospheric balloon freefall parachute flight test program. On 14 October 2012, the program successfully accomplished the highest stratospheric freefall parachute jump (highest exit altitude) from 127,852 feet, achieving human supersonic flight (Mach 1.25) or maximum vertical speed without a drogue chute at 843.6 miles per hour/1357.6 kilometers per hour. His professional interests focus on the neurologic effects of extreme environments and crew survival in space. Source: <a href="https://www.ihmc.us/groups/jonathan-clark/">https://www.ihmc.us/groups/jonathan-clark/</a></td>
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Robert R. Hoffman, Ph.D. is a recognized world leader in cognitive systems engineering and Human-Centered Computing. He is a Senior Member of the Association for the Advancement of Artificial Intelligence, Senior Member of the Institute of Electrical and Electronics Engineers, Fellow of the Association for Psychological Science, Fellow of the Human Factors and Ergonomics Society, and a Fulbright Scholar.

Hoffman has been Principal Investigator, Co-Principal Investigator, Principal Scientist, Senior Research Scientist, Principal Author, or Principal Subcontractor on over 60 grants and contracts totaling over $15M. He has led efforts including large, multi-partner, multi-year grant collaborations, contracted alliances of university and private sector partners, and multi-university research initiatives.

Hoffman’s Ph.D. is in experimental psychology from the University of Cincinnati, where he received McMicken Scholar, Psi Chi, and Delta Tau Kappa Honors. Following a Postdoctoral Associateship at the Center for Research on Human Learning at the University of Minnesota, Hoffman joined the faculty of the Institute for Advanced Psychological Studies at Adelphi University.

Hoffman has been recognized internationally in cognitive systems engineering, applied psychology, artificial intelligence, and human factors engineering—for his research on the methodology of cognitive task analysis and human-centering issues for human-systems integration systems technology.

Hoffman is a Co-Editor for the Department on Human-Centered Computing in IEEE: Intelligent Systems. He was a co-founder of The Journal of Cognitive Engineering and Decision Making. His current research focuses on methodological and measurement issues in the analysis of complex systems, and performance measurement for complex work systems.

Source: https://www.ihmc.us/groups/rhoffman/

Publications: http://cmapsinternal.ihmc.us/viewer/cmap/1197480481720_777343812_10092
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| Peter Pirolli, Ph.D. | Peter joined IHMC in 2017. Previously he was a Research Fellow in the Interactive Intelligence Area at the Palo Alto Research Center (PARC), where he studied human information interaction.  
Before joining PARC, he was a Professor in the School of Education at UC Berkeley. Peter received his doctorate in cognitive psychology from Carnegie Mellon University in 1985. He received a B.Sc. in psychology and anthropology from Trent University.  
Pirolli has been elected as a Fellow of the American Association for the Advancement of Science, the American Psychological Association, the Association for Psychological Science, the National Academy of Education, and the ACM Computer-Human Interaction Academy.  
Peter is the author of “Information Foraging Theory: Adaptive Interaction with Information.” Peter is currently an Associate Editor for Human Computer Interaction.  
Source: [https://www.ihmc.us/groups/peter-pirolli/](https://www.ihmc.us/groups/peter-pirolli/) |
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| Robert Griffin, Ph.D. | Robert Griffin is a Research Scientist at IHMC, and focuses on improved mobility with legged robotic devices. He received his B.S. from Tennessee Tech, and his Ph.D. from Virginia Tech in 2017 with a primary research focus on the control of bipedal robotic mobility for humanoids and exoskeletons.  
In 2016, Robert joined IHMC’s team for the 2016 Cybathlon, where they placed second in Powered Exoskeleton race. This project focused on using lower extremity exoskeleton devices to enable people with paralysis to complete a timed obstacle course, for which Robert functioned as the software and controls lead.  
Robert returned to IHMC full time in 2017, where he now focuses on improving mobility over complicated terrain for both humanoid robots and exoskeletons. He is particular interested in combining the use of reduced order models that approximate walking systems with optimization techniques, allowing the natural dynamics of the walking system to evolve while still performing numerically precise control. It is his hope that, by examining nature to determine the most important characteristics for control, bipedal robots will become useful enough to be used outside of the laboratory environment and in every day life.  
Prior to joining IHMC, Robert was at the Virginia Tech Terrestrial Robotics, Engineering, & Controls lab (TREC) as a controls engineer for their humanoid robot projects. While there, he functioned as the controls lead for the Shipboard Autonomous Firefighting Robot program through the Office of Naval Research, where his team successfully demonstrated in 2014 the first fire suppression on a Navy ship using a humanoid robot.  
He was also the controls lead for Virginia Tech’s entry into the 2015 DARPA Robotics Challenge, where they fielded their custom humanoid robot, ESCHER. He also worked with TREC to develop a lower body exoskeleton for balance assistance in paralyzed individuals under the National Robotics Initiative (NRI).  
Source: [https://www.ihmc.us/groups/robert-griffin/](https://www.ihmc.us/groups/robert-griffin/)  
Publications: [https://www.ihmc.us/robert-griffin-publications/](https://www.ihmc.us/robert-griffin-publications/) |
Appendix I

Research Statement
Institute for Human and Machine Cognition
IHMC is a world-renowned research institute working in the areas of artificial intelligence, cyber security, robotics, assistive technologies, natural language understanding, data mining, and other related high technology fields. A 501(c)3 statewide research institute created pursuant to Section 1004.447 F.S., IHMC is part of the State University System of Florida with formal research affiliations with FAU, FIT, UCF, USF, UWF, MOTE Marine and the Moffitt Cancer Center. IHMC has also entered into a formal collaborative research protocol with the Tampa Veterans Administration and is currently engaged in several projects with that venue. IHMC has received national recognition for its community outreach initiatives, including its highly popular public evening lecture series, summer robotics camp, and youth-oriented science and educational outreach initiatives (Science Saturdays and I LOVE Science). In 2016, IHMC launched its STEM-Talk Series, a free podcast series featuring some of the most interesting people in science and technology. With 43 episodes online, STEM-Talk has maintained a 5-star rating with over 500,000 listeners.

A recognized economic driver, IHMC was honored with the top US Department of Commerce Award for Excellence in Technology-Driven Economic Development. In June of 2015, IHMC scientists and researchers made worldwide news after placing second in the international DARPA dynamic walking robotics competition held in Pomona, California. In October of 2016, IHMC won the Silver Medal for its powered exoskeleton in the Cybathlon held in Zurich. Also of importance, IHMC’s CEO Dr. Ken Ford and Senior Research Scientist Dr. Jerry Pratt have both been inducted into the Florida Inventor’s Hall of Fame. CEO Ken Ford, Senior Research Scientist Bill Clancey and Research Scientist David Fries have recently been honored as elected Fellows of the National Inventors Academy.

Researchers at IHMC pioneer technologies aimed at leveraging and extending human capabilities. Current active research areas include: knowledge modeling and sharing, adjustable autonomy, robotics, advanced interfaces and displays, communication and collaboration, computer-mediated learning systems, intelligent data understanding, software agents, cyber security, sensory substitution, natural language understanding, expertise studies, work practice simulation, knowledge representation, and other related areas. IHMC prides itself on a broad and interdisciplinary approach to addressing societal issues and creating advanced technological solutions, thus its research staff includes well-known computer scientists, cognitive psychologists, neuroscientists, physicians, and engineers.

IHMC faculty and staff collaborate extensively with industry and government to develop science and technology that can be enabling with respect to society’s broader goals. IHMC researchers receive contract and grant funding from an array of government and private sources. IHMC research partners have included: DARPA, NSF, NASA, Army, Navy, Air Force, NIH, DOT, IBM, IDEO, Sun Microsystems, Microsoft, Boeing, Lockheed, and SAIC, among many others.

In 2016 in Pensacola, IHMC completed an $8,000,000 dollar state of the art research building that includes a state of the art robotics lab and a sensory augmentation lab. The building is equipped with a glass walkway on its second floor where student field trips and visitors can watch activities in the robotics lab. It is our expectation that this unique experience of watching young scientists and engineers at work on futuristic technologies including walking robots and powered exoskeletons will help excite local youth about careers in STEMM (science, technology, engineering, math and medicine) fields. This building opened its doors to the public
in October 2016. Since that time, it has hosted numerous public school student field trips as well as expanded outreach in the community for visitors including international groups and professional organizations.

Over the past several years, IHMC has worked to expand and diversify its research areas by attracting several new Research Scientists. One of these scientists is the holder of 35 patents and works in the development of microsystems and robotics/automation for sensing applications, advanced sensor development (e.g. chemical, physical and biological probes technologies) and mobile robotic systems for field applications. His technical activities also touch upon advancements in advanced manufacturing technology, systems technology, medical instrumentation, technology commercialization, and even arts-science. Another Research Scientist specializes in the field of human performance optimization and risk mitigation for operators in extreme environments, such as those working in undersea diving, high altitude aviation, and space. A third Senior Research Scientist and the holder of 74 patents joined IHMC this summer. His research involves a mix of cognitive science, artificial intelligence, and human-computer interaction, with applications in digital health, sensemaking, and information foraging. IHMC believes all three of these new research arenas will be very successful and assist IHMC in attracting more federal research dollars to Florida.

In July of 2017, IHMC purchased a 2 acre lot across the street from its main facility with the plan to build additional lab space for the three new research areas discussed above and future space to locate PhD students for research dissertation studies in intelligent systems and robotics.

In summary, IHMC continues to enhance its operations and expand in research of national significance including advanced cognitive assistance technologies, network/cyber security, companion devices, exoskeletons, natural language understanding, critical infrastructure protection, human performance optimization, and sustainable energy modeling and simulation. This research expansion is happening in both downtown Pensacola and downtown Ocala, in part through the successful recruitment of top scientists and researchers to Florida. Maintaining prominence in current research areas and developing strength in these emerging research areas are vital to IHMC’s continued growth and of critical importance to our national defense, security and overall societal needs.
Appendix J

IFR forecast: 1.7 million new robots to transform the world’s factories by 2020

Frankfurt, September 27th, 2017 – By 2020 more than 1.7 million new industrial robots will be installed in factories around the world. Today, the strongest growth in the robotics industry is in Asia – lead by China as the world’s number one marketplace. In 2017 robot installations are estimated to increase by 21 percent in the Asia-Australia region. Robot supplies in the Americas will surge by 16 percent and in Europe by 8 percent. Important drivers of this development: robot adoption is a response to faster business cycles and the requirement to produce with greater flexibility tailored to customer demand in all manufacturing sectors. A new generation of industrial robots will pave the way for ever more flexible automation. So says the 2017 World Robotics Report, as published by the International Federation of Robotics (IFR).

"Robots offer high levels of precision and their connectivity will play a key role in new digital manufacturing environments," says Joe Gemma, President of the International Federation of Robotics. “Increasing availability enables more and more manufacturers from companies of all sizes to automate.”

Industrial robots in operation

In terms of units, it is estimated that by 2020 the worldwide stock of operational industrial robots will increase from about 1,828,000 units at the end of 2016 to 3,053,000 units. This represents an average annual growth rate of 14 percent between 2018 and 2020. In Australasia the operational stock of robots is estimated to increase by 16 percent in 2017, by 9 percent in the Americas and by 7 percent in Europe. Since 2016, the largest number of industrial robots in operation has been in China. In 2020, this will amount to about 950,300 units, considerably more than in Europe (611,700 units). The Japanese robot stock will slightly increase in the period between 2018 and 2020. About 1.9 million robots will be in operation across Asia in 2020. This is almost equal to the global stock of robots in 2016.

TOP five markets in the world

There are five major markets representing 74 percent of the total sales volume in 2016: China, South Korea, Japan, the United States and Germany.

China has significantly expanded its leading position as the largest market with a share of 30 percent of the total supply in 2016. With sales of about 87,000 industrial robots China came close to the total sales volume of Europe and the Americas combined (97,300 units). Chinese robot suppliers continued to expand their home market share to 31 percent in 2016.
South Korea is the second biggest market in the world. Due to major investments by the electrical and electronics industry in robots, annual sales increased considerably. About 41,400 units were sold in 2016. This is a rise of 8 percent compared to 2015. South Korea has the highest level of robot density in the world, about 630 robots installed per 10,000 employees in the manufacturing industry in 2016. Korea is a market leader in LCD and memory chip manufacturing.

In Japan robot sales increased by 10 percent to about 38,600 units (2016), reaching the highest level since 2006 (37,400 units). Japan is the predominant robot manufacturing country. Since 2010, the production capacity of Japanese robot suppliers has increased in order to meet the growing demand for industrial robots: production more than doubled from 73,900 units in 2010 to 152,600 units in 2016 (52 percent of the global supply in 2016).

In the United States robot installations increased by 14 percent to a peak of 31,400 units (2016). The driver for this continued growth since 2010 was the ongoing trend to automate production in order to strengthen the competitiveness of American industries in overseas markets. Investments have been made to keep manufacturing at home, and in some cases, to bring back manufacturing that had previously been relocated overseas. Due to this dynamic development, the robot density in the United States increased considerably – in particular in the automotive industry. With a density of 1,261 installed robots per 10,000 employees the United States ranked second in 2016 after the Republic of Korea. Most of the robots in the USA are imported from Japan, Korea and Europe.

Germany is the fifth largest robot market in the world and by far the largest in Europe. The annual supply and operational stock of industrial robots in 2016 had a share of 36 percent and 41 percent respectively of total robot sales in Europe. In 2016, the number of robots sold increased slightly to 20,039 units compared to 2015 (19,945 units).

Future trend: smart factory

Industry 4.0 - linking the real-life factory with virtual reality - will play an increasingly important role in global manufacturing. As obstacles like system complexities and data incompatibility are overcome, manufacturers will integrate robots into factory-wide networks of machines and systems. Robot manufacturers are already developing and commercializing new service models: these are based on real-time data collected by sensors which are attached to robots. Analysts predict a rapidly growing market for cloud robotics in which data from one robot is compared to data from other robots in the same or different locations. The cloud network allows these connected robots to perform the same activities. This will be used to optimize parameters of the robot’s movement such as speed, angle or force. Ultimately, the advent of big data in manufacturing could redefine the industry boundaries between equipment makers and manufacturers.

Future trend: small-to-medium-sized manufacturers to automate

Some robot manufacturers are also considering leasing models, particularly in order to accelerate adoption by small-to-medium-sized manufacturers. Simplification is a key trend for this market segment. The ongoing need for robots which are easier to use and to program and the increasing need for ever more flexible automation initiated the development of smarter solutions. This is especially useful for industries with a lack of specialized production engineers in-house. Thus, it is important to provide easy-to-use robots that can easily be integrated into and operated in standard production processes. Robots that are uncomplicated to use will
enable the deployment of industrial robots in many industries to sustain efficient and flexible manufacturing.


1.7 million new industrial robots by 2020

About IFR
The International Federation of Robotics: www.ifr.org

The IFR Statistical Department publishes two robotics studies each year:
World Robotics - Industrial Robots: This unique report provides global statistics on industrial robots in standardized tables and enables national comparisons to be made. It contains statistical data from around 40 countries broken down into areas of application, industrial sectors, types of robots and other technical and economic aspects. Production, export and import data is listed for selected countries. It also describes the trends in relation to robot density, e.g. the number of robots per 10,000 employees in relevant sectors.
World Robotics - Service Robots: This unique report provides global statistics on service robots, market analyses, case studies and international research strategies on service robots. The study is jointly prepared with our partner Fraunhofer IPA, Stuttgart.

Press contact
econNEWSnetwork
Carsten Heer
Tel. +49 (0) 40 822 44 284
Email: press@ifr.org
When the University of Washington's computer-science department wanted to poach artificial-intelligence expert Carlos Guestrin from Carnegie Mellon, it turned to Amazon.com Inc. The Seattle-based tech giant ponied up $2 million to fund two professorships: one for Mr. Guestrin, and another for his wife, who also works in the field. To seal the deal, Amazon Chief Executive Jeff Bezos met the academic during a campus visit.

“[Mr. Bezos] is a very smart guy. He has a crazy laugh,” said Mr. Guestrin, now UW's Amazon Professor of Machine Learning. “We got quickly into technical things: What was I working on in large-scale machine learning? How could I impact Amazon? What could this mean for the business of data?”

Tech companies also are pouring funds into universities with expertise in the once-obscure field. University of Washington, based in the same state as Microsoft Corp. and Amazon, has long been a center of excellence for computer science, including artificial intelligence. Microsoft, Intel Corp. and Google, as well as Amazon, all fund some of UW’s AI research.

UW also has become a Silicon Valley hunting ground. Before it recruited Mr. Guestrin—who earned his reputation creating artificial-intelligence-related tools for developers—the university lost seven AI-related professors to Google.

https://www.wsj.com/articles/artificial-intelligence-experts-are-in-high-demand-1430472782
“There’s a massive battle under way for talent,” said Oren Etzioni, on leave from UW’s computer-science faculty and now heading up the Seattle-based Allen Institute for Artificial Intelligence, a nonprofit set up by Microsoft co-founder Paul Allen. “Virtually every professor at the UW computer-science department has been called many times to work at these companies, and frankly it’s a very compelling pitch.”

Companies are on the prowl not just for big names in the field, but for newly minted Ph.D.s. Amazon is advertising for more than 50 AI positions in the U.S. and Europe, hunting for doctorate-holders in fields like machine learning, information science and statistics.

Last year, Google bought DeepMind, a startup founded by Cambridge University graduates. After the Google deal, DeepMind absorbed two Oxford University spin-offs specializing in AI. As part of the transaction, Google agreed to a research partnership with Oxford’s computer-science program.

Google and Amazon declined to comment about their AI ambitions.

AI is a broad academic field, encompassing techniques aimed at giving computers the ability to make decisions that a human might, based on data analysis. Machine learning and other subsets are a more-targeted discipline inside the broader AI field.

Commercial uses for AI are still limited. Predictive text and Siri, the iPhone's voice-recognition feature, are early manifestations. But AI’s potential has exploded as the cost of computing power drops and as the ability to collect and process data soars. Big tech companies like Facebook and Google now vacuum up the huge amount of data that needs to be processed to help machines make “intelligent” decisions.

“AI has become ‘like wow,’ in Silicon Valley today,” said Akli Adjaoute, founder and CEO of Brighterion, a software company that uses machine learning techniques to spot financial fraud for credit card customers.

Microsoft is working on understanding context in human interaction. The company has been awarded a patent for Internet-connected glasses that can detect and interpret the emotions of people within their field of vision in real time and provide feedback to the wearer. The patent for “a wearable emotion detection feedback system,” was filed in October 2012, and awarded this Tuesday.

Asked about Google's top priorities at a conference last week Executive Chairman Eric Schmidt said the “core thing” his company is working on these days is machine learning. He cited...
progress in image and speech recognition. Regarding the latter, he said it is a “sore point” that Apple Inc.’s Siri “gets all the credit.”

The relationship between tech giants and academia can be difficult to navigate. Some faculty members complain tech companies aren’t doing enough in the many collaborative efforts now under way. One big gripe: Companies aren’t willing to share the vast data they are able to collect.

“The high value of this work encourages companies like Google to keep their progress more secret,” said Tom Mitchell, a department head at Carnegie Mellon’s computer-science program.

Those who embrace the relationship say it can provide real-world incentive for scientific advances. Hank Levy, head of UW’s computer-science program, said he isn’t bitter about the poaching from Google over the years.

“Often, people go off for a year or two and then they come back and bring new experiences that expand both their teaching and research,” he said.

In late 2013, Facebook hired Yann LeCun, one of the world’s most prominent AI academics, from New York University. As an AT&T engineer in the 1980s and ’90s, he helped pioneer handwriting-recognition processing used by banks to authenticate checks. He is now Facebook’s chief of artificial intelligence.

As part of the courtship, Facebook let him keep his post at NYU, a block up Broadway from Facebook headquarters. He still works for the university part-time. Facebook partnered with the university on a new center dedicated to data science, a key element of AI research. Facebook scientists lecture at NYU, and NYU Ph.D. students can apply for long-term internships at Facebook’s AI lab.

Facebook Chief Executive Mark Zuckerberg read some of Mr. LeCun’s papers before meeting him during the recruitment process. “That completely floored me,” says Mr. LeCun.

—Rolfe Winkler in San Francisco contributed to this article.

Write to Amir Mizroch at amir.mizroch@wsj.com
THAT a computer program can repeatedly beat the world champion at Go, a complex board game, is a coup for the fast-moving field of artificial intelligence (AI). Another high-stakes game, however, is taking place behind the scenes, as firms compete to hire the smartest AI experts. Technology giants, including Google, Facebook, Microsoft and Baidu, are racing to expand their AI activities. Last year they spent some $8.5 billion on deals, says Quid, a data firm. That was four times more than in 2010.

In the past universities employed the world’s best AI experts. Now tech firms are plundering departments of robotics and machine learning (where computers learn
from data themselves) for the highest-flying faculty and students, luring them with big salaries similar to those fetched by professional athletes.

Last year Uber, a taxi-hailing firm, recruited 40 of the 140 staff of the National Robotics Engineering Centre at Carnegie Mellon University, and set up a unit to work on self-driving cars. That drew headlines because Uber had earlier promised to fund research at the centre before deciding instead to peel off its staff. Other firms seek talent more quietly but just as doggedly. The migration to the private sector startles many academics. “I cannot even hold onto my grad students,” says Pedro Domingos, a professor at the University of Washington who specialises
in machine learning and has himself had job offers from tech firms. “Companies are trying to hire them away before they graduate.”

Experts in machine learning are most in demand. Big tech firms use it in many activities, from basic tasks such as spam-filtering and better targeting of online advertisements, to futuristic endeavours such as self-driving cars or scanning images to identify disease. As tech giants work on features such as virtual personal-assistant technology, to help users organise their lives, or tools to make it easier to search through photographs, they rely on advances in machine learning.

Tech firms’ investment in this area helps to explain how a once-arcane academic gathering, the Conference on Neural Information Processing Systems, held each December in Canada, has become the Davos of AI. Participants go to learn, be seen and get courted by bosses looking for talent. Attendance has tripled since 2010, reaching 3,800 last year.

No reliable statistics exist to show how many academics are joining tech companies. But indications exist. In the field of “deep learning”, where computers draw insights from large data sets using methods similar to a human brain’s neural networks, the share of papers written by authors with some corporate affiliation is up sharply (see chart).

Tech firms have not always lavished such attention and resources on AI experts. The field was largely ignored and underfunded during the “AI winter” of the 1980s and 1990s, when fashionable approaches to AI failed to match their early promise. The present machine-learning boom began in earnest when Google started doing deals focused on AI. In 2014, for example, it bought DeepMind, the startup behind the computer’s victory in Go, from researchers in London. The price was rumoured to be around $600m. Around then Facebook, which also reportedly hoped to buy DeepMind, started a lab focused on artificial intelligence and hired an academic from New York University, Yann LeCun, to run it.
The firms offer academics the chance to see their ideas reach markets quickly, which many like. Private-sector jobs can also free academics from the uncertainty of securing research grants. Andrew Ng, who leads AI research for the Chinese internet giant Baidu and used to teach full-time at Stanford, says tech firms offer two especially appealing things: lots of computing power and large data sets. Both are essential for modern machine learning.

All that is to the good, but the hiring spree could also impose costs. One is that universities, unable to offer competitive salaries, will be damaged if too many bright minds are either lured away permanently or distracted from the lecture hall by commitments to tech firms. Whole countries could suffer, too. Most big tech firms have their headquarters in America; places like Canada, whose universities have been at the forefront of AI development, could see little benefit if their brightest staff disappear to firms over the border, says Ajay Agrawal, a professor at the University of Toronto.

Another risk is if expertise in AI is concentrated disproportionately in a few firms. Tech companies make public some of their research through open sourcing. They also promise employees that they can write papers. In practice, however, many profitable findings are not shared. Some worry that Google, the leading firm in the field, could establish something close to an intellectual monopoly. Anthony Goldbloom of Kaggle, which runs data-science competitions that have resulted in promising academics being hired by firms, compares Google's pre-eminence in AI to the concentration of talented scientists who laboured on the Manhattan Project, which produced America's atom bomb.

**Ready for the harvest?**

The threat of any single firm having too much influence over the future of AI prompted several technology bosses, including Elon Musk of Tesla, to pledge in December to spend over $1 billion on a not-for-profit initiative, OpenAI, which will make its research public. It is supposed to combine the research focus of a university with a company's real-world aspirations. It hopes to attract researchers to produce original findings and papers.

Whether tech firms, rather than universities, are best placed to deliver general progress in AI is up for debate. Andrew Moore, the dean of Carnegie Mellon
University's computer-science department, worries about the potential for a “seed corn” problem: that universities could one day lack sufficient staff to produce future crops of researchers. As bad, with fewer people doing pure academic research, sharing ideas openly or working on projects with decades-long time horizons, future breakthroughs could also be stunted.

But such risks will not necessarily materialise. The extra money on offer in AI has excited new students to enter the field. And tech firms could help to do even more to develop and replace talent, for example by endowing more professorships and offering more grants to researchers. Tech firms have the cash to do so, and the motivation. In Silicon Valley it is talent, not money, that is the scarcest resource.

**Correction:** This article has been amended to make clear that the $8.5 billion spent by technology companies was on deals and did not include money spent on research and hiring.

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Tech Giants Are Paying Huge Salaries for Scarce A.I. Talent

Nearly all big tech companies have an artificial intelligence project, and they are willing to pay experts millions of dollars to help get it done.

By CADE METZ  OCT. 22, 2017

SAN FRANCISCO — Silicon Valley’s start-ups have always had a recruiting advantage over the industry’s giants: Take a chance on us and we’ll give you an ownership stake that could make you rich if the company is successful.

Now the tech industry’s race to embrace artificial intelligence may render that advantage moot — at least for the few prospective employees who know a lot about A.I.

Tech’s biggest companies are placing huge bets on artificial intelligence, banking on things ranging from face-scanning smartphones and conversational coffee-table gadgets to computerized health care and autonomous vehicles. As they chase this future, they are doling out salaries that are startling even in an industry that has never been shy about lavishing a fortune on its top talent.

Typical A.I. specialists, including both Ph.D.s fresh out of school and people with less education and just a few years of experience, can be paid from $300,000 to $500,000 a year or more in salary and company stock, according to nine people who work for major tech companies or have entertained job offers from them. All of them

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requested anonymity because they did not want to damage their professional prospects.

Well-known names in the A.I. field have received compensation in salary and shares in a company’s stock that total single- or double-digit millions over a four- or five-year period. And at some point they renew or negotiate a new contract, much like a professional athlete.

At the top end are executives with experience managing A.I. projects. In a court filing this year, Google revealed that one of the leaders of its self-driving-car division, Anthony Levandowski, a longtime employee who started with Google in 2007, took home over $120 million in incentives before joining Uber last year through the acquisition of a start-up he had co-founded that drew the two companies into a court fight over intellectual property.

Salaries are spiraling so fast that some joke the tech industry needs a National Football League-style salary cap on A.I. specialists. “That would make things easier,” said Christopher Fernandez, one of Microsoft’s hiring managers. “A lot easier.”

There are a few catalysts for the huge salaries. The auto industry is competing with Silicon Valley for the same experts who can help build self-driving cars. Giant tech companies like Facebook and Google also have plenty of money to throw around and problems that they think A.I. can help solve, like building digital assistants for smartphones and home gadgets and spotting offensive content.

Most of all, there is a shortage of talent, and the big companies are trying to land as much of it as they can. Solving tough A.I. problems is not like building the flavor-of-the-month smartphone app. In the entire world, fewer than 10,000 people have the skills necessary to tackle serious artificial intelligence research, according to Element AI, an independent lab in Montreal.

“What we’re seeing is not necessarily good for society, but it is rational behavior by these companies,” said Andrew Moore, the dean of computer science at Carnegie Mellon University, who previously worked at Google. “They are anxious to ensure that they’ve got this small cohort of people” who can work on this technology.
Costs at an A.I. lab called DeepMind, acquired by Google for a reported $650 million in 2014, when it employed about 50 people, illustrate the issue. Last year, according to the company’s recently released annual financial accounts in Britain, the lab’s “staff costs” as it expanded to 400 employees totaled $138 million. That comes out to $345,000 an employee.

“It is hard to compete with that, especially if you are one of the smaller companies,” said Jessica Cataneo, an executive recruiter at the tech recruiting firm CyberCoders.

The cutting edge of artificial intelligence research is based on a set of mathematical techniques called **deep neural networks**. These networks are mathematical algorithms that can learn tasks on their own by analyzing data. By looking for patterns in millions of dog photos, for example, a neural network can learn to recognize a dog. This mathematical idea dates back to the 1950s, but it remained on the fringes of academia and industry until about five years ago.

By 2013, Google, Facebook and a few other companies started to recruit the relatively few researchers who specialized in these techniques. Neural networks now help recognize faces in photos posted to Facebook, identify commands spoken into living-room digital assistants like the Amazon Echo and instantly translate foreign languages on Microsoft’s Skype phone service.

Using the same mathematical techniques, researchers are improving self-driving cars and developing **hospital services that can identify illness and disease in medical scans**, digital assistants that can not only recognize spoken words but understand them, **automated stock-trading systems** and **robots that pick up objects they’ve never seen before**.

With so few A.I. specialists available, big tech companies are also hiring the best and brightest of academia. In the process, they are limiting the number of professors who can teach the technology.

Uber **hired 40 people** from Carnegie Mellon’s groundbreaking A.I. program in 2015 to work on its self-driving-car project. Over the last several years, four of the best-known A.I. researchers in academia have left or taken leave from their professorships at Stanford University. At the University of Washington, six of 20
artificial intelligence professors are now on leave or partial leave and working for outside companies.

“There is a giant sucking sound of academics going into industry,” said Oren Etzioni, who is on leave from his position as a professor at the University of Washington to oversee the nonprofit Allen Institute for Artificial Intelligence.

Some professors are finding a way to compromise. Luke Zettlemoyer of the University of Washington turned down a position at a Google-run Seattle laboratory that he said would have paid him more than three times his current salary (about $180,000, according to public records). Instead, he chose a post at the Allen Institute that allowed him to continue teaching.

“There are plenty of faculty that do this, splitting their time in various percentages between industry and academia,” Mr. Zettlemoyer said. “The salaries are so much higher in industry, people only do this because they really care about being an academian.”

To bring in new A.I. engineers, companies like Google and Facebook are running classes that aim to teach “deep learning” and related techniques to existing employees. And nonprofits like Fast.ai and companies like Deeplearning.ai, founded by a former Stanford professor who helped create the Google Brain lab, offer online courses.

The basic concepts of deep learning are not hard to grasp, requiring little more than high-school-level math. But real expertise requires more significant math and an intuitive talent that some call “a dark art.” Specific knowledge is needed for fields like self-driving cars, robotics and health care.

In order to keep pace, smaller companies are looking for talent in unusual places. Some are hiring physicists and astronomers who have the necessary math skills. Other start-ups from the United States are looking for workers in Asia, Eastern Europe and other locations where wages are lower.

“I can’t compete with Google, and I don’t want to,” said Chris Nicholson, the chief executive and a co-founder of Skymind, a start-up in San Francisco that has
hired engineers in eight countries. “So I offer very attractive salaries in countries that undervalue engineering talent.”

But the industry’s giants are doing much the same. Google, Facebook, Microsoft and others have opened A.I. labs in Toronto and Montreal, where much of this research outside the United States is being done. Google also is hiring in China, where Microsoft has long had a strong presence.

Not surprisingly, many think the talent shortage won’t be alleviated for years.

“Of course demand outweighs supply. And things are not getting better any time soon,” Yoshua Bengio, a professor at the University of Montreal and a prominent A.I. researcher, said. “It takes many years to train a Ph.D.”

Follow Cade Metz on Twitter @CadeMetz

A version of this article appears in print on October 23, 2017, on Page B1 of the New York edition with the headline: N.F.L. Salaries for A.I. Talent.

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UWF Board of Trustees Meeting
Academic Affairs Committee
May 24, 2018

Issue/Agenda Recommendation: Strategic Plan to Improve the Four-Year Graduation Rate

Proposed Action: Informational

Background Information:

In Fall 2017, UWF developed a plan to improve the four-year graduation rate and achieve the Florida SUS’ goals. This includes goals that significantly increase the completion rates of FTIC cohorts through 2020. UWF is concentrating on four key areas that provide the University the greatest ability to make a positive impact: continuing to define the new UWF student; improving support resources; enhancing financial resources aimed at increasing retention and graduation; and strengthening and reinforcing a culture of shared accountability. UWF’s four-year graduation rate strategic plan incorporates elements from the original block tuition plan and includes academic, financial, policy, and curricular incentives for timely graduation. In order to ensure long-term success, over the next three years the comprehensive plan will be fully implemented campus-wide.

Implementation Plan: N/A

Fiscal Implications: N/A

Supporting documents: PowerPoint Presentation

Prepared by: Dr. Joffery Gaymon, Vice President for Enrollment and Student Affairs, jgaymon@uwf.edu, 474-3386

Presented by: Dr. Joffery Gaymon, Vice President for Enrollment and Student Affairs
Four-Year Graduation Rate

STRATEGIC PLAN

Plan to Reach State University System of Florida System Goals
Dear Colleagues,

Back in 2012, the University of West Florida and all other Florida state universities learned a new language—performance-based metrics. Last year, we showed our mastery of that language, and it’s up to us to continue to improve and excel.

The Florida Excellence in Higher Education Act, which was passed by the legislature and signed by Gov. Scott, has now become law. One of the provisions of this bill changes the current six-year graduation rate metric to a four-year FTIC graduation rate. This change means that we need to work with our students from the time they are admitted to UWF until their graduation day to keep them focused on earning their degrees.

Our online graduation dashboard displays each student’s progress toward a degree, showing what happens if they change majors, the impact of excess hours, financial aid and time to degree. There’s even an alert built in to warn them if they get off track from degree completion. This strategic plan ensures that when the change is made to move from a six-year to a four-year graduation rate, we are ready and our students have the tools and resources they need.

Thank you for everything you do to make our students successful.

Sincerely yours,

Martha D. Saunders, Ph.D.
President

Mission

Our mission at UWF is to
• Provide high-quality undergraduate and graduate education
• Conduct teaching and research that services the body of knowledge
• Contribute to the needs of professions and society

The President’s Vision for UWF

A spirited community of learners, launching the next generation of big thinkers who will change the world.

Values

Our institutional values—shared by students, faculty and staff—make UWF a great place to learn and to work. UWF maintains policies and practices and pursues initiatives congruent with our values.

UWF Operates with Integrity in all Matters: Doing the Right Thing for the Right Reason.

Caring
Maintaining a safe and dynamic learning and working environment that fosters the development of individual potential.

Collaboration
Promoting a culture of supportive and cooperative interactions and communication to advance and achieve shared expectations and goals.

Creativity
Providing opportunities to imagine, innovate, inspire and express different approaches and solutions to existing and anticipated needs and challenges.

Entrepreneurship
Encouraging a culture that identifies opportunities to initiate change.

Inclusiveness
Welcoming, respecting and celebrating the differences and the similarities among people and idea.

Innovation
Exploring, expanding and enhancing learning and knowledge through transformational experiences.
The core of the University of West Florida’s mission is a commitment to ensuring student success. As outlined in the 2017-2022 UWF Strategic Plan, the University is dedicated to planning and investing strategically to enhance student success and educational attainment. In a deliberate effort to increase the four-year graduation rate and reach the Florida State University System’s goals, UWF is concentrating on four key areas that provide the University the greatest ability to make a positive impact. This plan is aligned with the priorities highlighted within the Board of Governors’ Performance Based Funding Model and driven by national best practices in retention and completion.

Since 2012, UWF has invested in long-term strategies that not only increased the institution’s performance in the Board of Governors’ performance-based funding model, but also enhanced the overall quality of the education and experience provided. We increased the number of new full-time faculty members and hired additional professional academic advisors. An online graduation dashboard was developed that empowers students, faculty and staff to closely monitor degree progression. We created the Office of Strategic Graduation Initiatives. $2 million was invested toward student scholarships, grants and student success programs. We created three new divisions: the Division of Academic Engagement, Division of Enrollment and Student Affairs and Division of Research and Strategic Innovation; allocated funding toward student grants and programs to support retention and graduation efforts; increased the academic quality of FTIC students; and expanded our focus on early warning. We formed a university-wide council for academic advising and began to address institutional barriers to academic advising. We identified gateway courses and developed new policies, including the Undergraduate Student Progress to Degree policy and the FTIC General Education Attendance policy to support progress to obtaining a degree.

The University is keenly aware of the importance of continuous progress. Through this plan, the University has established goals that will significantly increase the completion rates of FTIC cohorts. To achieve these goals, student year-to-year persistence at UWF must improve substantially. In particular, the first-to-second year persistence rate must increase from 77 to 85 percent, and the second-to-third year persistence rate must improve from 54 to 70 percent. Thus, this plan focuses critically on enhancing the early college experience and supplying students with tools that help them progress.

**PROGRESS**

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<th>National Merit</th>
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All new incoming freshmen understand the importance and cost savings of graduating in four years.
Four Key Areas of Focus

In order to ensure long-term success, UWF has developed a comprehensive plan. Encompassed in the plan are four overarching strategies that will be implemented campus-wide. The four strategies include:

**STRATEGY 1**
Continue to define the new UWF student.

**STRATEGY 2**
Improve support resources.

**STRATEGY 3**
Enhance financial resources aimed at increasing retention and graduation.

**STRATEGY 4**
Strengthen and reinforce a culture of shared accountability.

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**PLAN TO REACH SYSTEM GOALS**

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**STRATEGY 1**
Continue to define the new UWF student.

- Build a pipeline of high achieving students and increase visibility by increasing the number of full ride scholarships each year.
- Expand student access to Kugelman Honors Program by broadening program admissions and developing college-based honors curricula.
- Offer high-impact scholarship opportunities to high-achieving students, including a study abroad stipend or summer research grant.
- Expand the out-of-state tuition waiver program to attract high achieving students.
- Continue to maximize accelerated credit including AP, AICE, IB or CLEP and dual enrollment courses taken during high school.
- Increase “leadership” scholarships for students active in high school.

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“This scholarship will open so many doors for me. I hope to attend nursing school and eventually become a nurse practitioner, helping people and making a difference in their lives.”

—Hannah Funk, National Merit Finalist
STRATEGY 2
Improve support resources.
• Launch tools and programs that empower students, faculty and staff to monitor degree progression.
  • Senior Countdown provides a graduation grant to students that commit to graduating within four years.
  • Formalize a career development plan that includes creating career goals, planning for high impact/experiential learning practices, attending careers events and creating/reviewing career tools (resumes, mock interviews, etc.).
• Hire graduation and transition advisors to notify students when they are enrolled in a course that places them off track.
• Increase virtual support services.
  • Enhance the Career Development and Community Engagement College Liaison Program. Hire additional staff in high workforce demand areas: engineering, hospitality, healthcare and cybersecurity.
  • Develop partnership program between First Year Advising and Career Development and Community Engagement to develop a more streamlined approach for students seeking majors (undecided) as well as to enhance student’s early understanding of degree to career field strategies.
• Continue to formalize the Dive Deep First Year Experience, Freshman Interest Groups and Foundations for Success course.
• Enhance the Tutoring & Learning Resources office to become the campus leader in learning strategies and academic coaching.
  • Create experiences for students at all levels over the course of their academic careers. Expand high-impact and experiential learning opportunities for lower division.
• Continue to develop support programs for at-risk student populations including first generation, students with disabilities, underrepresented groups and low-income students.
• Redesign the Housing and Residential Life experience to increase persistence and student success and expand living learning communities.
  • Hire additional counselors to improve student mental and behavioral health coverage.
  • Develop cohort models of block scheduling for key groups.
• Develop a program to provide intrusive support to second-year students identified as academically at risk.
• Launch the Undergraduate Board Fellows Program.
• Enhance University Commons by designing an intentional space for both residential and commuter students, including a space for a Student Business Incubator.
• Develop a Co-Curricular Early Warning Plan to complement Academic Early Warning.

STRATEGY 3
Enhance financial resources aimed at increasing retention and graduation.
• Increase the number and amount of need- and merit-based scholarships.
• Continue to expand work-study programs including community-based, college, corporate, federal work-study programs and on-campus internships.
• Increase the number of renewable awards to support retention and graduation efforts.
• Expand financial aid awards to include fall, spring and summer semesters.
• Continue to expand completion grants opportunities that support retention and graduation efforts.

STRATEGY 4
Strengthen and reinforce a culture of shared accountability.
• Update the Undergraduate Progress to Degree Policy to include expanded expectations for timely graduation, including, a minimum credit hour each year, ability to automatically award a degree and a required timeframe to declare a major. Policy update will consider expanding early warning to second-year students and special populations.
• Require all units to develop measurable goals that support retention and student success efforts.
• Collaborate with Education Advisory Board to purchase the Student Success Collaborative Guide.
• Identify technology that supports career development and career management.
• Evaluate academic offering and develop new programs that align with UWF’s strategic goals.
• Develop online resources through Canvas that will help students be successful and help faculty support students in their courses.
• Investigate the feasibility of developing three-year bachelor’s degree programs targeted towards students that enroll with a high number of accelerated credit.
• Explore the feasibility of developing a winter intersession program.
UWF is committed to access and affordability. Last year, nearly $100 million was awarded to future students, and more than 70 percent of all UWF students receive financial assistance. Since 2015, UWF has increased financial resources and allocated an additional $2 million toward student scholarships, grants and student success initiatives.

Historically, 60 percent of new first time in college students are need-based students; the average need is $15,685 and at least 70 percent of their need is met annually. To enable full-time FTIC students with financial need an opportunity to take at least 15 credit hours in the fall and spring, UWF is allocating $1 million toward decreasing the percent of unmet need.

**UWF Completion Grant Programs Fall 2018**
- Senior Countdown: Eligible students receive first priority registration and a $1,000 Graduation Grant for their final semester.
- UWF Graduation Grant: Grant awarded to eligible seniors with an outstanding balance, during the final semester.

**30 Credit Guarantee Fall 2019**
- The following applies to full-time FTIC undergraduate Florida resident students eligible for the Pell Grant:
  - Students will receive 100 percent of funding to cover 30 hours of tuition and fees and additional $1,200 for books and supplies each year, up to eight semesters.
  - Students who take 15 credits per semester and receive UWF’s institutional need-based funds will be awarded $2,000 annually. Awards will be adjusted for students enrolled in 12-14 credit hours per semester. Upon successful completion of at least 26 credits each year (fall and spring), students will be awarded an additional $750 for the summer immediately following.

**Expand Financial Aid Awards Fall 2019**
- All full-time FTIC student financial aid awards will be budgeted for 30 credits year and include funding for the fall, spring and summer semesters.

**Priority Selection for Work-Study Positions Summer 2019**
- All full-time FTIC undergraduate students eligible for work-study and that complete 30 credits each year will receive priority selection for work-study positions.
Appendix

STRATEGIES BY ACADEMIC COLLEGE

College of Arts, Social Sciences and Humanities
- Develop and disseminate a common advising syllabus throughout the college. Syllabus includes all progress to degree information, updated annually for use of advisers and students.
- Host academic advisor workshops to focus on the fulfillment of the four-year graduation rate.
- Continue to track and monitor CASSH FTIC cohorts.
- Continue to evaluate student academic appeals through the Academic Appeals Committee.
- Continue to utilize SSC Campus to reduce the number of students graduating with excess hours.
- Continue to provide high-impact opportunities for CASSH students including Humans of UWF, Data Dialogues or the World Languages Café, intercultural immersion and educational abroad experiences, exhibitions, performances, competitions, scholarly and creative presentations, and involvement in faculty research.

College of Business
- Develop a Student Engagement and Support Center, a centralized advising center.
- Continue to host the Welcome Back Deck BBQ at COB. Freshmen, sophomores, as well as returning juniors and seniors are invited.
- Continue to dedicate tutors in key courses that historically have given students the most difficulty.
- Continue to provide high-impact opportunities for COB students including the Executive Mentor Program, involvement in faculty research, industry-specific recruiting events, industry-specific class speakers, participation in Students Scholars Symposium & Faculty Research Showcase, live case, internships, field studies and national competitions.

College of Education and Professional Studies
- Continue to support the college-wide Advising Center. Advisors will be provided:
  - Cross-training to answer questions about all CEPS programs
  - Training sessions concerning metrics
  - Assessment Plan
- Continue to develop the college-wide Advising Center assessment plan.
- Develop faculty mentor program to provide a resource to students who want to discuss specifics of the major, graduate school, employment opportunities, etc.
- Continue to provide high-impact opportunities for CEPS students including involvement in faculty research, internships, clinical experiences, practicum and capstone experiences.
Usha Kundu, MD College of Health

• Host “So you want to be a nurse?” for pre-nursing students to better understand realistic discipline requirements.
• Continue to host and increase program participation for P2S: Plan 2 Succeed. This is a retention program focused on students in restricted and limited access programs who are unsuccessful or predicted to be unsuccessful in their current major to learn about other majors offered at UWF.
• Continue to collaborate with Career Development and Community Engagement to develop host annual job fairs specific to students within the UKCOH. Build the Pre-Health Advising Program through the UKCOH Advising Center, offering secondary advising to students interested in pursuing graduate health programs.
• Continue to track and monitor UKCOH FTIC cohorts.
• Continue to evaluate student academic appeals through the Academic Appeals Committee.
• Review Student Assessment of Instruction to understand student’s perceptions of their education and to make appropriate revisions of courses or curriculum.
• Continually evaluate individual advisors practice through student surveys.
• Track override usage to make appropriate revisions of course or curriculum.

Hal Marcus College of Science and Engineering

• Provide curriculum, support and career development opportunities that engage students to support retention and graduation of all students.
• Continue to provide support programs to assist students with success in their courses, mentoring for career development and other related activities.
• Continue to offer supplemental instruction for courses with high DFW rates.
• Use recitation and workshop for lower division math courses.
• Continue to offer a STEM Living and Learning Community.
• Continue to increase the availability of discipline-based tutoring.
• Continue to focus on advising with streamlined processes, use of best practices and other tools to ensure students get timely and accurate information.
• Continue to support STEM learning communities.
• Use annual advising report to improve quality of advising experience for HMCSE students.
UWF Strategic Direction 1: Learner Centered & Focused

Launch strategic plan for improved four-year graduation rate - Submitted by Joffery Gaymon

Launched Fall 2017, the plan to improve the four-year graduation rate and reach the Florida State University System’s goals, includes established goals that significantly increase the completion rates of FTIC cohorts through 2020. UWF is concentrating on four key areas that provide the University the greatest ability to make a positive impact. The four strategies include continuing to define the new UWF student, improve support resources, enhance financial resources aimed at increasing retention and graduation, and strengthen and reinforce a culture of shared accountability. We have made tremendous progress, 46% of the 2015 cohort, 47% of the 2016 cohort, and 79% of the 2017 cohort are projected to graduate in 4 years.

Action Steps

During Fall 2017, two new Completion Grant Programs were piloted. The Senior Countdown program, targeted to rising seniors, provides eligible students an opportunity to commit to graduating within the academic year. Upon enrolling in the program, students receive first priority registration and a $1,000 Graduation Grant for their final semester. To date, 323 students from the Fall 2014 cohort have joined. The UWF Graduation Grant program awards grant funds to eligible seniors with an outstanding balance, during the final semester. In order to ensure long-term success, over the next three years, the comprehensive plan will be fully implemented campus-wide.

Anticipated Outcomes

- Reach Florida State University System’s four-year graduation rate goals by 2022, with the 2018 FTIC cohort.
- Metric 4: 5% annual increase in the four-year graduation rate.
- Metric 3: Decrease in the average cost to the student.
- Metric 7: 2% overall increase in the University Access Rate (percent of undergraduate students with a Pell Grant).

Support Documentation

- Four-Year Graduation Rate- Strategic Plan
- Senior Countdown

https://uwf.edu/offices/enrollment-and-student-affairs-division/strategic-initiatives/senior-countdown/