Graduate Council Agenda
Meeting Wednesday, January 17, 2018
EHFA, room 164 @ 11:45 am

Old Business
1. Approve minutes from December 6, 2017
2. Universal application deadlines
3. ACAD-SENA 111

New Business
1. Jim Solazzo – CHE and SACS review
2. Course changes:
   a. Current course description:
      IST 678 Business Intelligence and Analytics. (3) Course provides an introduction to
      Business Intelligence, including analytics, processes, methodologies, infrastructure and
      current practices used to transform business data into useful information and support
      business decision-making. Students will learn to extract and manipulate data from these
      systems and assess statistical analysis along with reporting options such as management,
      dashboards, and balanced scorecards. F, S, SU

      Proposed catalog description:
      IST 678 Business Intelligence and Analytics. (3) (Prereq: grade of C or better in IST 670)
      This course provides an introduction to Business Intelligence, including analytics,
      processes, methodologies, infrastructure and current practices used to transform business
      data into useful information and support business decision-making. Students will learn to
      extract and manipulate data from these systems and assess statistical analysis along with
      reporting options such as management, dashboards, and balanced scorecards. F, S, SU

   b. Current course description:
      IST 659 Special Topics in Information Systems Technology-Security Patterns. (3)
      (Prereq: IST 650, IST 660, IST 661, IST 670, IST 671 with “C” or better) Course
      examines the field of security design patterns. Students will survey a set of security
      patterns, study implementation options for selected patterns, and contribute additional
      pattern documentation to improve the effectiveness and usability of selected patterns for
      the general community. Project work in this course would include the implementation of
      security patterns to a real world problem. F, S, SU

      Proposed catalog description:
      IST 659 Special Topics in Information Systems Technology. (3) (Prereq: IST 650, IST
      660, IST 661, IST 670, IST 671 with “C” or better) Course examines the emerging topics
      in the field of Information Systems Technology. The course will include a significant
      engagement in writing as a form of critical inquiry and scholarly expression. Project work
      in this course would include the implementation of emerging IST topic related to a real
      world problem. F, S, SU
c. **Current course description:**
IST 669 Special Topics in Information Security-Secure Cloud Computing. (3) (Prereq: IST 650, IST 660, IST 661, IST 670, IST 671 with “C” or better) Course explores the special topics in security - specifically fundamentals of cloud computing and addresses the cloud security related risks, issues and challenges associated with the cloud by exploring the security architectures, cloud software security and cloud networking security tools and techniques. Project work in this course would include detailed solutions to the cloud computing security related industry problems.

**Proposed catalog description:**
IST 669 Special Topics in Information Security. (3) (Prereq: IST 650, IST 660, IST 661, IST 670, IST 671 with “C” or better) Course examines the emerging topics in the field of Information Security. The course will include a significant engagement in writing as a form of critical inquiry and scholarly expression. Project work in this course would include the implementation of emerging Information Security topic related to a real world problem. F, S, SU.

d. **Current course description:**
IST 679 Special Topics in Data Analytics -Big Data Analytics. (3) (Prereq: IST 650, IST 660, IST 661, IST 670, IST 671 with “C” or better) Course covers the fundamental concepts of Big Data management and analytics. In addition, this course is designed to equip the students with the analysis, design and development of the applications that deal with very large volumes of data as well as in proposing scalable solutions for them to aid business intelligence and scientific discovery. Project work in this course would include the implementation of solutions to the big data related industry problems. F, S, SU

**Proposed catalog description:**
IST 679 Special Topics in Data Analytics. (3) (Prereq: IST 650, IST 660, IST 661, IST 670, IST 671 with “C” or better) Course examines the emerging topics in the field of data analytics. The course will include a significant engagement in writing as a form of critical inquiry and scholarly expression. Project work in this course would include the implementation of emerging data analytics topic related to a real world problem. F, S, SU.

3. **Changes in a graduate program:**
   a. **M.Ed. Learning and Teaching, Literacy Concentration:** The M.Ed. in Learning and Teaching/Literacy Concentration has been dissolved and replaced with a M.Ed. in Language, Literacy and Culture. Therefore, the M.Ed. in Learning and Teaching with a concentration in Literacy PK-12 needs to be removed from the graduate catalog. The program was dissolved. Change to be effective fall 2018.
   b. **M.Ed. Language, Literacy and Culture: Required course:** EDLL 603 – Research in Literacy Methods and Materials to EDUC 607 – Research for Today’s Schools (already offered in the College of Education) EDLL 603 was a new course that was to be required in the M.Ed. in Language, Literacy and Culture degree. The previous program, M.Ed. in Learning and Teaching with a Literacy Concentration, which was dissolved, required EDUC 607. After reviewing the proposed course, EDLL 603, it was
determined that student needs could be better met through requiring EDUC 607 since students can tailor their research in the course to the literacy field. At the same time students can broaden their educational research knowledge by participating in a course with students pursuing other graduate degrees. In addition, graduate students in the M.Ed. in Language, Literacy and Culture Degree already are required to take a research course specific to the literacy field, EDLL 622, Action Research in Literacy Coaching.

4. Proposal for new graduate courses:
The course introduces the concept of renewable energy systems. The course will cover fundamental aspects of thermodynamics and physics. Topics will include hydro-kinetic, aero- and hydro-propulsion and solar with emphasis on the principles of operation, efficiency, environmental impact and performance. Sp
   **Justification:** Renewable energy systems are one of the growing technologies as resources are limited. The course will introduce basic principles in energy systems and enhance the CMSS curriculum by providing a course that covers all topics of science from a system approach. The course has been taught during Spring 2016. A total of 18 students participated.
   b. **BIOL 601 – Gene Expression**: Proposed catalog description: (3):
Advanced coursework examining the intricacies of gene expression from chromatin remodeling through protein production in both prokaryotes and eukaryotes. S
   **Justification:** This course is required for the new M.Sc. in Integrative Biology program. As such, program assessment has not been done for this course as yet. This course will provide much needed foundation for students wishing to pursue advanced studies and work in the molecular sciences including biotechnology-related fields.
   c. **BIOL 602 – Symbiosis**: Proposed catalog description: (3):
The course will identify and examine the evolutionary aspects and mechanisms involved in the establishment and maintenance of symbiotic associations between organisms. A broad range of symbiotic relationships will be addressed from mutualistic to parasitic and will include examples of both facultative to obligate associations. F
   **Justification:** This is a new course offered for the M.Sc. in Integrative Biology program. This course will offer a bridge between the molecular and physiological worlds for graduate students and should be of great interest to students wishing to pursue any field of study as symbiosis impact all organisms at some level. There is no prior program assessment for this course.
   d. **BIOL 680 – Professional Development in the Biological Sciences**: (3):
Instruction for graduate-level writing expectations in the biological sciences including grants, thesis proposals, and manuscripts. Additional topics will focus on development of a C.V., professional presentations and posters, as well as pedagogical instruction for Biology courses at the college-level.
   **Justification:** As this is a new course for a new program, no current program assessment exists. This course will offer curriculum necessary to prepare GAs for teaching at the college level, as well as prepare graduate students to be successful grant and thesis writers. Outcomes of this course include an increased level of teaching excellence by GAs and grant revenue at CCU.
e. **BIOL 603 – Special Topics in Biotechnology: (3):** Variable content investigating current innovations in biotechnology. Multiple instructors will teach this course with each instructor given a period of time (2-3 weeks) to address a “hot” topic of biotechnology or research in their field of interest. F, S Justification: This course will function to enhance the integrative nature of the MS in Integrative Biology program. Further, this course will provide introduction to a variety of cell/ molecular fields and techniques for graduate students to help refine their thesis studies.

f. **BIOL 610 – Environmental Microbiology: (3):** An introduction to the critical importance of microorganisms in various environments and in sustaining life. Metabolic diversity, roles in biogeochemical cycles, community structure, activity, importance in aquatic and terrestrial environments, and applied aspects such as bioremediation will be discussed. F Justification: Course for new Integrative Biology MS program that supports one focal area of study.

g. **BIOL 614 – Population Biology: (3):** Principles of population ecology and population genetics will be examined. Topics include growth, decline and regulation of populations, demography, life history strategies, metapopulations, basic population genetics and molecular evolution, and applications in conservation and resource management. S Justification: Course for new Integrative Biology MS program that supports one focal area of study.

h. **BIOL 612 – Environmental Animal Physiology: (3):** An examination of physiological responses and adaptations of animals to their environment. Topics covered will include the molecular basis of adaptation, gas exchange, metabolism, energetics, thermal relations, and water and solute metabolism. F Justification: Course for new Integrative Biology MSc program that supports one focal area of study.

i. **BIOL 611 – Fish Conservation: (3):** A focus on the science addressing issues related to the decline, restoration, and conservation of marine and freshwater fishes globally and locally. F Justification: Course for new Integrative Biology MS program that supports one focal area of study.

j. **BIOL 613 – Ecological Indicators: (3):** A comprehensive examination of the scientific use and development of multiple types of data to communicate condition of communities and ecosystems, especially with respect to the impacts of humans. S Justification: Course for new Integrative Biology MS program that supports one focal area of study.

k. **BIOL 687 – Selected Topics for Integrative Biology: (1-4 credits):** Topics designed in specialty areas of Integrative Biology will be examined. F, S, SU Justification: New courses for the Integrative Biology Master’s program can be taught once using the Selected Topics (BIOL 687) designation. Provides a simple path to pilot new courses or take advantage of new, topical opportunities for instruction.

l. **BIOL 697 – Graduate Seminar I: (1 credit):** Approaches to research and literature review of possible thesis research are examined. F, S Justification: Required course for new Integrative Biology MS program.

m. **BIOL 698 – Graduate Seminar II: (1 credit):** (Prereq: BIOL 697) Plans for thesis research and expected outcomes based on a review of literature are presented and evaluated. F, S Justification: Required course for new Integrative Biology MS program.
n. **BIOL 699 – Graduate Seminar III: (1 credit):** (Prereq: BIOL 698) Techniques for communicating results in research are evaluated. F, S **Justification:** Required course for new Integrative Biology MS program.

o. **BIOL 700 – Thesis Research: (1-6 credits):** Research conducted leading toward the preparation, acceptance, and defense of a thesis. May be repeated up to 6 credits. F, S, SU **Justification:** Required course for new Integrative Biology MS program.

p. **BIOL 702 – Project Completion: (1 credit):** (Prereq: completion of six credit hours of BIOL 700) Research activity towards completion of a thesis. May be repeated. Pass/Fail credit. F, S, SU **Justification:** Course for new Integrative Biology MS program.

5. **Proposal for a new graduate program:**

a. **Master of Science – Integrative Biology: Spring 2020 – Catalog description:**

**MISSION STATEMENT**

The purpose of the Master of Science degree program in Integrative Biology is to train students to help resolve major challenges in biology wherein the organism is the focal target of study. To be successful in this undertaking, students must evaluate organisms at multiple levels of organization, from genes to ecosystems, and incorporate multiple sub-disciplines, including molecular biology, physiology, ecology, and evolution. The Integrative Biology M.Sc. will give a sense of the breadth of the life sciences as well as enable students to delve into a focal area via targeted coursework and original research culminating in a thesis. The two focal areas are 1) Cellular and Molecular Biology; and 2) Ecology, Evolution, and Conservation; while each student will primarily study in one area, all students must take one course in each area to allow greater exposure to the diversity within biological sciences. The goals of the program are satisfied through 24 credit hours of coursework and 6 credit hours of thesis research leading to the completion of a thesis.

**Student Learning Outcomes**

1. Synthesize content from the two focal areas to create a multi-faceted approach to the problem addressed in the student’s thesis research.
2. Demonstrate mastery of essential, discipline-specific skills, in the course of completing advanced coursework.
3. Conduct original research and communicate the results effectively in oral and written formats.

**Graduate Applications**

Applications for graduate study should be directed to the Office of Graduate Studies at Coastal Carolina University.

**Admission Requirements**
Regular admission to the Master of Science in Integrative Biology is met by satisfactorily meeting the criteria below. Note that some admission requirements may be waived at the discretion of the Integrative Biology program coordinator.

1. Completion of an application form.
2. Submission of an official transcript from each post-secondary school or college previously attended (all prior undergraduate academic study must be represented as well as other graduate study). Transcripts should show a minimum overall graduating GPA of 3.0 and a minimum GPA of 3.0 in any graduate work already completed.
3. Evidence of having received a baccalaureate degree from a regionally accredited institution in this country or its equivalent at a foreign institution based on a four-year degree program, with a preference for a degree in a biology-related discipline.
4. Submissions of official Graduate Record Examination (GRE) scores.
5. Submission of two letters of recommendation from those who can comment on your academic readiness.
6. Submission of a written statement of educational and career goals, how this degree will fulfill those goals and the subject area of research interest while completing this degree.
7. Submission of a resume/curriculum vitae.
8. If a non-native speaker of English, provide official results from tests taken within the last three years or one of the following acceptable means of documenting English language proficiency consistent with success in graduate programs. Note that higher scores may be required of some graduate programs so applicants are urged to consult their desired program to identify whether a higher score is required:
   a. A minimum score of 550 on the paper-based (PBT) or 79 on the internet (iBT) Test of English as a Foreign Language (TOEFL);
   b. A minimum score of 6.5 on the International English Language Testing System (IELTS) exam;
   c. Certificate of Completion of level 112 of English for Academic Purposes (EAP) from an ELS Language Center;
   d. Pearson Test of English (PTE) Academic with a score of 59;
   e. Cambridge CAE (Certificate of Advanced English) with a minimum level of C1;
   f. Cambridge CPE (Certificate of Proficiency in English) with a minimum level of C1;
   g. MELAB (Michigan English Language Assessment Battery) with a score of 77;
   h. TOEIC (Test of English for International Communication) with a score of 745;
   i. Bachelor’s degree earned from a regionally accredited U.S. institution of higher education within the last three years.

**Provisional Admission**

Applicants may receive provisional admission in the Master of Science in Integrative Biology degree program if they do not meet the stated admission requirements and are entering the University for the first time or are returning to the University after an extended absence. Students on provisional admission are limited to 12 hours of course work.
Removal of Provisional Status
To remove provisional status the student must, within the first two academic semesters (either Fall, Spring, or Spring, Fall):
1. Earn a B or better in a focal area course;
2. Maintain a 3.0 GPA in all graduate courses taken; and
3. Earn a B or better in all undergraduate prerequisites required as specified in the provisional acceptance letter.

Admission to Candidacy
Admission to the graduate program in Integrative Biology does not signify Admission to Candidacy. To be eligible for Admission to Candidacy for the Master of Science in Integrative Biology, a student must:
1. Achieve regular admission status;
2. Have a degree plan and thesis proposal approved by the major professor, thesis committee, and Program Coordinator;
3. Complete a minimum of 12 semester hours of graduate work at Coastal Carolina University; and
4. Have earned a B or better average on all graduate work pursued.

All students, including transfer students, must clear the English Proficiency Requirement, if applicable, before being admitted to Candidacy.

Degree Requirements
The Master of Science in Integrative Biology requires:
1. Successful completion of an approved program of study with a minimum of 30 graduate hours;
2. Admission to Candidacy;
3. A minimum grade point average of 3.0 (B) on all course work;
4. Completion, presentation, and successful defense of a thesis; and
5. All work applied toward the degree must be earned in the six years immediately preceding the completion of the graduate program.

Note: Transfer credit(s) cannot be used to raise the GPA at CCU.

Thesis
Students must assemble a thesis committee of at least three (3) members by the second semester of enrollment or risk losing eligibility for an assistantship. The committee will consist of at least three (3) full-time CCU faculty members including the major professor who will chair the committee. A committee member from an outside institution may be included, but requires approval by the program coordinator. The entire thesis committee will meet with the student semi-annually to assess progress and to give advice. Before graduation, students will submit the completed thesis to the program coordinator who will schedule the public defense.
Enrollment Requirement
Students in the Integrative Biology program must be continuously enrolled during all phases of graduate work. This includes Fall, Spring, and Summer terms (the Summer term here is inclusive of Maymester, Summer I, and Summer 2). This requirement is typically satisfied by registering for a minimum of one graduate credit in each term. However, the situation may arise where students have completed all course requirements except for the thesis. In this case, students must enroll in BIOL 702 Project Completion in order to satisfy the continuous enrollment requirement. Registering in BIOL 702 maintains email and library privileges and also allows access to University facilities and faculty advisers. BIOL 702 does not count toward degree requirements and does not substitute for the 6 credit hour requirement in BIOL 700 Thesis Research.

Required Graduate Degree Credit Hours (30 Graduate Credit Hours)
The Master of Science in Integrative Biology requires the successful completion of an approved program of study with a minimum of 30 graduate credit hours. The M.S. in Integrative Biology has two focal areas: 1) Cellular and Molecular Biology; and 2) Ecology, Evolution, and Conservation. All students must take one course in each focal area to allow greater exposure to the diversity within biological sciences. Within the approved program are focal area electives, electives, seminars, a professional development course, and thesis research credits.

REQUIRED COURSES (12 Credit Hours)
BIOL 680: Professional Development for the Biological Sciences............... 3
BIOL 697: Graduate Seminar I................................................................. 1
BIOL 698: Graduate Seminar II.............................................................. 1
BIOL 699: Graduate Seminar III............................................................. 1
BIOL 700: Thesis Research..................................................................... 6

FOCAL AREA ELECTIVE COURSES (6 Credit Hours)
Cellular and Molecular Biology (3 Credit Hours)
BIOL 601: Gene Expression................................................................. 3
BIOL 602: Symbiosis.......................................................................... 3
BIOL 603: Special Topics in Biotechnology........................................... 3

Ecology, Evolution, and Conservation (3 Credit Hours)
BIOL 610: Environmental Microbiology.............................................. 3
BIOL 611: Fish Conservation Biology.................................................. 3
BIOL 612: Environmental Animal Physiology....................................... 3
BIOL 613: Ecological Indicators........................................................... 3
BIOL 614: Population Biology.............................................................. 3

ELECTIVES (12 Credit Hours)
(Choose up to 12 credit hours) ................................................................ 12
Electives must be approved 500-level or above courses from BIOL, CHEM, CMSS, CMWS, CSCI, IST, MATH, MSCI, PHYS, or STAT. A maximum of 6 credit hours at the 500 level may be used towards completing degree requirements.

Use of Technology
(Describe the mode of course delivery, opportunities for student-faculty interactions, and faculty development activities related to the use of technology, if any.)

Courses will be delivered as lectures taught by graduate faculty. Master's thesis research will be conducted under the guidance of faculty using a variety of technologies (lab and field equipment, computers, analytical software).

6. Proposal for minor changes/removal of multiple graduate courses within same program:
   a. Open