The University of Toledo

New Graduate Course Proposal

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College: Medicine

Dept/Academic Unit: Biochemistry & Cancer Biology

Alpha/Numeric Code (Subject area - number): CABP 8250

Proposed title: Scientific Communication Skills and Career Goals
Proposed Effective Term: 2015 20 (Spring)

Is the course cross-listed with another academic unit? No

Approval of other Academic Unit (Signature and title): n/a

Is the course offered at more than one level? No

If yes, an undergraduate course proposal form must also be submitted. If the undergraduate course is new, complete the New Undergraduate Course Proposal; if the undergraduate course is existing, submit an Undergraduate Course Modification Proposal.

Credit hours: Fixed: 2 or Variable:

Delivery mode: Primary Secondary Tertiary

Activity Type: Lecture Workshop Seminar

Minimum Credit Hours
1 X .5

Maximum Credit Hours
1 X .5

Weekly Contact Hours
1

Terms Offered: Fall X Spring Summer

May the courses be repeated for credit? No

Are students permitted to register for more than one section during a term? No

Years offered
Alternate Year

Maximum hours:

Grading system:
Normal Grading (A-F, S/U, WP/WF, Pr, I)

Prerequisites (must be taken before): e.g., C or higher in BIOE 4500 or BIOE 5500 and C or higher in MATH 4200, etc.

Must be enrolled in graduate school as MSBS or PhD student, and in 2nd year or later, or a postdoctoral fellow at UT.
Co-requisites (must be taken together):

none

Catalog Description (75 Words Maximum)

Three-fourths of the course will be focused on individual, small group, and whole class participation in communication skills. One fourth of the class will be devoted to information and assessment of individual career options. Web based assessment tools and outside expertise will be recruited for this portion of the class.

Attach a syllabus and an electronic copy of a complete outline of the major topics covered. Click here for the template.

For Administrative Use Only

Effective Date
CIP Code
Subsidy Taxonomy
Program Code
Instruction Level
University of Toledo
CABP 8250 Scientific Communication Skills and Career Goals
Spring 2015

SYLLABUS

Instructor: Kandace Williams
Faculty Office: HSC BHSB Rm 437B
Faculty/Department web site: http://www.utoledo.edu/me
Office Hours: Monday – Friday 8 am – 5 pm
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Class Meetings Location: Either BHSB Rm 436 or Rm 480

*Course Description including course pre-requisites or co-requisites
This course is primarily designed for the UT-COM & LS Biomedical Science Program and physician-scientist graduate trainees with a two-fold goal; to enhance scientific communication skills at all levels and to develop knowledge of the numerous scientific career options available to basic and physician scientists, including tenure track academic research. This course will prepare our trainees for enhanced opportunities in science communication, leadership, and scholarship by the use of innovative educational approaches. By the time a trainee is ready to enroll in this advanced graduate course, they will already have excellent skill sets learned at the bench, such as logical scientific reasoning, hypothesis development, experimental design, project management, problem solving/troubleshooting skills, and data analysis. This course will help the students to use these skills, and to develop new skills, for effective communication at all levels and for defining individual career goals. This is currently planned as a 2 credit semester-long course, limited to 10 trainees per course, and offered once per year or alternate years, depending on need. All students must have finished at least two years of research training. Postdoctoral fellows may take the course at any time during their training.

*Texts (Required and Recommended, Reserve Materials, etc.)
No specific texts required. Lecture, handout material, and websites will be provided for each phase of the course.

Course Requirements: Expectations of students in course
Final grades (A-F) will be determined by scoring rubrics that will be developed to include formative and summative assessment of specific performance characteristics after lectures and student projects. Both pre-assessment performance (formative) and improvement by the end of the course (summative) will be graded for each topic area, unless noted otherwise.

*Grading policy or criteria
Specifically address how graduate students will be graded/assigned work differently from undergraduate students in cross-listed courses – N/A

*Assessment of Learning: Identification of methods used to assess student learning in the course
Possible suggestions: Pre-assessment (formative assessment) and improvement assessment (summative) scoring rubrics will be used for each project that students participate in (please see syllabus for more details). Each of the 3 bulleted items below will be used during the course.

- Assignments
- Projects
- Group Work

**Classroom Procedures: Expectations of classroom behaviors including UT policies**

- Cell phones will not be allowed during class time
- Attendance, Absences, and Tardiness will be noted and points deducted from grade, as class participation is part of the course work.
- Policies on Late Work – points will be deducted from grade, as class participation is part of the course work.
- Policy on Missed Classes- points will be deducted from grade, as class participation is part of the course work.

- Accessibility and Special needs will follow UT policy
- Drop / Withdrawal will follow UT policy
- Academic Dishonesty
- Outside Readings / Ancillary Materials
- Classroom Courtesy

*Tentative Class Schedule/Activities/List of Topics Covered*

**Course syllabus**

**Scientific Communication Skills**
(10 hours lecture format + 20 hours student projects = 30 hours)

1. **Oral communication skills**
   - Pre-assessment – Students will use Webcam and Echo360 to pre-record a 5-7 minute oral presentation (no props) that will be transferred to Blackboard for review and scoring for both verbal and nonverbal communication skills during class by instructor and students.
   - After pre-assessment by faculty using a scoring rubric, lecture and handout material for effective oral communication skills will be presented to the students for use during subsequent assignments.

2. **PowerPoint presentation skills;**
   - Groups of 2-3 students will collaboratively prepare a 25-30 minute PowerPoint presentation directed to a lay audience, of an historical scientific breakthrough (creative props encouraged). Students will be encouraged to concentrate on effective oral communication skills.
   - Each PowerPoint presentation will be pre-assessed by faculty and students in class with regard to a scoring rubric for clarity and impact of PowerPoint. Oral presentations will be assessed by faculty using previous scoring rubric.
   - Lecture and handout material for effective PowerPoint communication skills will be presented.
3. Teaching skills
Lecture on Introduction to LectureTools and additional effective teaching tools will be presented to the class.
Each student will choose a basic scientific topic to be presented as a 20-30 minute lecture to an undergraduate biology major class. These presentations will be assessed by the class and faculty using a scoring rubric that was presented during the above faculty lecture.

4. Poster presentation and scientific peer review skills
This combined skill set will be developed by first having students critique specific posters in the halls of the medical school (posters will not belong to anyone in the class) using specific scoring rubrics.
Faculty lectures on poster development and presentation techniques. A poster power point template will be sent to each student in preparation for individual poster presentations. Improved poster presentation and oral communication skills will be assessed by preparation of a scientific poster of a recent published research breakthrough within the field of each student (not their own research), and a subsequent 10-12 minute oral presentation of the poster during class.
At the end of each presentation, all students will be given 15-20 minutes to write a summary of what was learned. These will be used for critical evaluations of both oral and poster presentation by each student to the class.

5. Scientific writing skills - abstract
Each student will be required to write a 250 word abstract describing their own research. Each abstract will be pre-assessed by faculty against a rubric of specific qualities important for writing scientific abstracts. Abstracts will be returned with scoring rubric to rewrite after lecture on manuscript writing.

6. Faculty lectures on scientific manuscript writing.
Scoring rubric for assessing manuscript development will be presented and examples demonstrated.
Research manuscript writing skills will be further developed by the assignment of a short scientifically formatted manuscript of each student’s research project to date, and will include the student’s rewritten abstract. A similar scoring rubric as above will be used to score student manuscripts.

7. Writing for lay audiences.
Students will then condense their manuscripts into newspaper articles. A Blade journalist will be invited to critique these articles for “newsworthiness to a lay audience”. (Any article selected for publication in the Blade will receive an “A” for this section of the course).

Career Goals
(5 hours lecture format + 10 hours student projects = 15 hours)
Career preparation and decision-making tools will be the focus of the remaining one-fourth of the course. In addition to course work, trainees will attend lectures from invited guest speakers.
Currently in non-academic careers from government, industry, and non-profit, including scientific enterprises that involve science-writing or science policy. Grades for this part of the course will depend on classroom participation as well as a summative scoring rubric designed for each topic area of student participation.

1. Each class participant will be required to complete a web-based individual development plan (IDP) to help define and pursue their career goals.

   The web-based IDP skills assessment is a new career-planning tool specifically for science graduates developed by FASEB and AAAS (myIDP.sciencecareers.org). This innovative scientific career guide has seven categories: scientific knowledge, research skills, communication, leadership and management, professionalism, responsible conduct of research, and career development. Completion of this guide will take each student several “sittings” for a thorough progression through each section.

2. Faculty lecture on informational interviewing.

3. Students will then develop an “Informational Interview” in which they will prepare questions for a 15-20 minute interview of a scientist who is employed within their career choice(s) to obtain more information about that type of career (not a job interview). Faculty will bring in a scientist from as many different fields as possible for informational interviews by the students. We will use FaceTime and Skype as necessary for the required expertise.

4. Trainees will also seek other information sources for each career choice, and then each will give a 15-20 minute presentation to the class describing their potential career choice.

5. Faculty lectures on interview skills after which each student will participate in mock job interviews as both the interviewer and the interviewee for different types of scientific careers.

6. Trainees will be tracked for 5 years after graduation for career development by the Associate Dean of COM & LS Graduate Programs. As time progresses, trainees who have successfully completed their course of study at UT-COM & LS will be invited back to share career experiences with current students.