

Scientific and Public Engagement for Biology Majors

BSC 4927 – 3 credit hours

Time: M/W 12-1:20

Instructor: Dr. Kate Mansfield, room 402B, Biological Sciences Building
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Office Hours: M/W 11-12 or TBD

Office hours may change/cancel based on my schedule/field work but I will provide advance notice of any changes.

Prerequisites: ENC 1102, Biology major, junior standing, one of the following: PCB3063L, or PCB3044L, or PCB4683L, and by instructor consent. Honors in the Major students are encouraged to register for this course.

Course Website: Webcourses TBD (BSC4927-1000)

Email Policies:

- Include in your email subject: course title and class number (BSC-4927).
- Include in your email: (1) your full name, (2) course title
- I will try to respond within 48 hours, but some response times may be longer. Please plan accordingly by not waiting to the last minute to contact me with questions or concerns.
- Typically, I do not check email in the evening, or past 9pm.
- Due to confidentiality, grades must be discussed in person with the instructor and not via email.
- I will only be able to send e-mail communications to your Knight's E-mail addresses.

Course Description and Goals:

The goal of this course is to provide early career scientists (particularly students focusing their studies in Biology), practical experience and training in disseminating biological research to a variety of audiences. Students will build skills in written, verbal, and visual representation of scientific or biological information, and learn about the publication process. We will cover how to write a strong scientific manuscript, navigating the

publication review process (submission, what to expect from reviews, responding to reviews, what to do if/when rejected), and what happens to your science story after publication. A recurring theme of this course is how to increase the impact of your science (professionally and to a wider audience), and developing a broader impact for your science. We will cover what to expect with university press releases, how to talk about your science to the media, in grant or fellowship/scholarship applications (e.g., NSF's GFRP application), and how, as a biologist, to work with the University media to make sure your science is accurately represented while being accessible to many. We will focus on developing skills that can translate into scientific speaking and written communication practices applied across a variety of communication outlets (thesis defenses, social media, "elevator pitches", press releases, scientific meetings, policy meetings, public outreach, etc.). Students will receive training in giving a strong scientific talk at a conference or science management meeting, responding to audience or stakeholder questions, and producing a strong poster or presentation (including data visualization).

This class will be hands-on with a heavy emphasis on practical application of the material learned and discussed during class. Students should expect written assignments, visual and oral presentation assignments, constructive feedback, as well as ice-breaker and improvisational exercises. Each student will either use their own research (e.g., Honors in the Major theses) and/or students will be paired with a lab or student/researcher within the Biology Department who has a recent paper published. Class participants will then become experts on that research/paper, using it for various exercises over the course of the semester.

Required texts and resources:

I will provide additional readings and other materials online (via webcourses) or in class. Weekly reading assignments will be noted in class.

Textbooks (required):

- ***Don't be Such A Scientist, Talking Substance in an Age of Style***, by Randy Olson

Webcourses: this course is a web-enhanced class. Announcements, lecture notes, quizzes, grades, additional readings, and relevant web links will be made available at this site. Use your NID and myUCF password to log in. Before emailing your instructor, please check this site for frequently asked questions or announcements!

Other Resources (suggested or provided readings):

- ***Am I Making Myself Clear, A Scientist's Guide to Talking to the Public***, by Cornelia Dean
- ***Good Charts, The HBR Guide to Making Smarter, More Persuasive Data Visualizations***, by Scott Berinato
- ***Marketing for Scientists, How to Shine in Tough Times***, by Marc Kuchner

- ***Explaining Research, How to Reach Audiences to Advance Your Work***, by Dennis Meredith

General Class Information, Expectations, and Assignments:

I expect you to actively participate in the class and you are responsible for learning any material that you may have missed. ***Note that class lectures will include information that is not covered by the assigned readings/textbook. All assignments must be typed unless otherwise noted.***

There will be NO extra credit for this class.

Lectures and in-class exercises:

Lectures and in-class activities will benefit you by highlighting important concepts and providing additional explanation of complex topics. I expect students to demonstrate respect for the instructor and their fellow students during class. Proper class etiquette includes: not arriving late or leaving early; turning all cell phones off when entering the classroom; not disrupting class by talking, texting, or using your computer for purposes unrelated to the lecture/note taking. Students not adhering to these common courtesies will be asked to leave the class.

Readings:

You will be responsible for *both* lecture material and assigned readings. Both sources are fair game for practical exams/class assignments. I will assign readings in class and/or on the class Webcourses website. To succeed, students must read and understand materials presented in the readings. Readings need to be completed **prior to class**.

Class participation, discussions, and in-class exercises:

Your attendance is important both for your understanding of the lecture material, as well as your participation in the class discussions and in-class exercises and will contribute towards your overall grade. I make note of students who participate in class and will periodically take attendance.

Semester assignments:

During the semester, you will be responsible for sharing a scientific article (of your choosing!) on current topics in the field of Biology (or other scientific field of interest—ideally focusing on recent work occurring within the Biology Department or UCF; Honors theses may be used). This will require some literature searching, preparation, and reading-up on a topic of interest to you, and meeting with the researchers or students conducting the research within the Department. This is something that you can prepare for in advance and you will build on different skill sets to present the research findings in different ways over the course of the semester. You will be required to email me (kate.mansfield@ucf.edu) your article(s) on the date due so I may share these with the

class. This is to allow the class enough time to complete any pertinent readings. The source of your article is up to you but final choices will need to be approved me. Please email me either an attachment with the article or a link to the source. At different points in the semester, you will be required to submit:

- 1) A press release focusing on the paper/topic(<one page, typed, single space, 12 pt font);
- 2) An informative infographic flyer/poster describing the study for a broad audience (rubric will be provided);
- 3) An oral 3-5-minute presentation summarizing the work to a broad audience (rubric for presentation will be provided).

Note that I encourage all of you to bring up topics of interest, articles, news items, etc. (related to the class) at any time during the semester. We may also set up a class FaceBook page.

Final assignment:

Your final “exam” assignment will be announced the last week of class and you will have an opportunity to gain feedback on your assignment from your peers and instructor prior to the final “exam” due date.

Missed assignment/exam policy:

1. I will provide make-up assignments **only** for students who must miss the due date(s) due to official University business at which your presence was required (e.g. a university-sponsored team event). **Hard-copy documentation must be provided 48 hours in advance from the appropriate university body.**
2. For all other cases (e.g. illness, unforeseen emergencies, etc.) you must contact me promptly (within 24 hours or less) after missing the due date and provide **hard-copy documentation (a signed document from a doctor, police officer, judge etc. - not by e-mail) within one week.** The absence must have been caused by a valid emergency as defined by UCF and/or the professor, including but not limited to: major illness, serious family emergency, jury duty, military obligation, etc.
3. Make up assignments will be at my discretion.
4. Unexcused absence from an exam (e.g., you slept through your alarm) will result in a failing grade for the missed assignment and you will not have an option of a make-up.
5. All students are required to take the final “exam” and there will be **no make-ups for the Final.**

Grading and Evaluation:

Students will be graded and evaluated based on class/discussion participation (including attendance completion of assignments, and final “exam”. You can access your scores at any time using the Grade Book function of Webcourses. Your grade will be based on the following assignments:

Class participation and discussions	25%
Assignment 1 (written)	15%
Assignment 2 (written and visual)	15%
Assignment 3 (written and oral)	15%
Final “exam” assignment (10% each component, written, oral, and visual)	30%

You can access your scores at any time using the **Grade Book function of Webcourses**. The overall final semester grade will not be rounded. Either you have the grade or you don't. In other words, a 79.9999 is still a 'C+'. **There will be no exceptions to this policy and no adjustments will be made to final grades.**

You will be graded based on the following scale (this class is NOT graded on a curve):

A	94-100%	C	73-76%
A-	90-93%	C-	70-72%
B+	87-89%	D+	67-69%
B	83-86%	D	63-66%
B-	80-82%	D-	60-62%
C+	77-79%	F	<60%

Academic Conduct:

Students are expected to follow UCF's standards for personal and academic conduct as defined and outlined in the Golden Rule (see: <http://goldenrule.sdes.ucf.edu>). Academic dishonesty in any form will not be tolerated. If you are uncertain as to what constitutes academic dishonesty, please consult The Golden Rule, the University of Central Florida's Student Handbook (<http://www.goldenrule.sdes.ucf.edu/>) for further details. As in all University courses, The Golden Rule Rules of Conduct will be applied. Violations of these rules will result in a record of the infraction being placed in your file and receiving a zero on the work in question AT A MINIMUM. At the instructor's discretion, you may also receive a failing grade for the course. Confirmation of such incidents can also result in expulsion from the University.

Late assignments will receive a 10% deduction per day that the assignment is late. After two days, late assignments will not be accepted and you will not receive credit for the assignment. **Make-up assignments will be determined on a case-by-case basis and in advance of any deadline (see policies above).** As noted above, if you must miss an assignment, exam, discussion, etc. and you have a valid reason for doing so (see above), you **must inform me by email PRIOR to the missed class/activity or ASAP.** If you must miss for medical/health reasons, please provide a doctor's note. Students are expected to notify me in advance (at the beginning of the semester) if they intend to miss class to observe a holy day of their religious faith.

The current UCF policy concerning **incomplete grades** will be followed in this course. Incomplete grades are given only in situations where unexpected emergencies prevent a student from completing the course and the remaining work can be completed the next

semester. Your instructor is the final authority on whether you qualify for an incomplete. Incomplete work must be finished by the end of the subsequent semester or the "I" will automatically be recorded as an "F" on your transcript.

As of Fall 2014, all faculty members are required to document students' academic activity at the beginning of each course. In order to document that you began this course, I will be documenting attendance during at least the first couple weeks of class. Failure to attend class will result in a delay in the disbursement of your financial aid and incur the wrath of the bean counters.

Technology and Media:

Email:

My preferred method of communication is via email. Please put "ZOO-4513" in the subject line. If I do not respond within 24 hours, please send a follow-up email. I will try to respond to all emails within 24 hours. Please note that I may not open emails received after 7-8 pm at night until the following morning.

Phones in Class:

Please turn off and put away all phones during class. Texts, phone calls, web searching, etc. will not be tolerated.

Laptop and iPad (or tablet) Usage:

Laptops and tablets may be used in class for the sole purpose of taking notes. All wireless/internet connections must be turned off and/or in airplane mode.

Disability Access:

The University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Students who need accommodations must be registered with Student Disability Services, Ferrell Commons Room 185, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from the professor.

Professionalism Policy:

Per university policy and classroom etiquette; mobile phones, iPods, *etc.* **must be silenced** during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, *etc.*, and have been warned may suffer a reduction in their final class grade.

Course Schedule (subject to revision):

I will provide additional optional and assigned readings as the semester progresses. The dates and assignments/subjects/readings in this schedule are tentative; I may change the schedule at my discretion.

Class schedule (*tentative and subject to change at the discretion of the instructor*):

The semester consists of 15 weeks (16 weeks including spring break) of two classes per week (one hour 20 minute classes).

*Indicates possibility of guest expert lecturer (dependent on scheduling and availability)

Module 1: Introduction

Week 1: Why is it important to disseminate your science? How do biologists disseminate their research? Readings TBD; icebreaker activities and exercises.

Week 2: Practical in-class exercises drawing from Toastmaster and theater improvisational exercises. Homework assignment: “see and be seen”.

***Week 3:** Practical exercises continued – refining your science story; 3-minute theses/“elevator pitches” including practical exercises drawing from theater improvisational exercises. Semester topics decided and submitted, papers selected.

Module 2: Written Scientific Communication—the Publishing Process

Week 4: Introduction to different types of written scientific communication. Discussion of students’ chosen papers; diagramming research papers—what goes into a scientific manuscript.

Week 5: Scientific publishing—the process of publishing your research and what to expect (submission, review, reviewer rebuttal, rejection or publication); disseminating your research once published.

***Week 6:** Press releases (guest lecturer from media/marketing department); draft press releases based on selected papers due. Discussion of different media types; introduction to media interviews.

***Week 7:** Using social media to disseminate your research (guest lecturer—one of two successful biologists and social media experts from Twitter); **Assignment 1 due**; in-class presentation of press releases and in-class feedback.

Module 3: Scientific Poster Design and Visualizing Your Research Data

Week 8: Poster design and types for science meetings and scientific outreach; introduction to visualizing your research data.

Week 9: Visualizing biological data (in-class exercises using real-world datasets).

Week 10: NO CLASS, Spring Break

Week 11: Assignment 2 due—research poster infographic. In-class infographic presentations and in-class feedback.

UCF SURE assignment: the UCF SURE poster event will occur during this module. You will be required to attend a portion of the SURE event, talk to a sample of poster presenters, and observe what you think worked and did not work with their presentation. Your findings will be discussed in class.

Module 4: Oral Presentation of Biological Research

Week 12: Identifying and connecting with an audience: what to expect at scientific meetings/defending your thesis, etc. (in-class exercises, some based on theater improvisation techniques).

Week 13: Telling your research story (in-class exercises using chosen paper/research story); in-class practice telling a 3-minute story about your topic (with in-class feedback and opportunity to refine your story).

Week 14: Assignment 3 due – 3 minute oral presentations of research paper (no visuals) with in-class feedback.

Week 15: Final “exam” presentations assigned. In-class opportunity to practice final presentations with feedback. Wrap-up discussions.

Final exam: Date TBD by university scheduling; in-class practical “exam” using techniques learned in class and incorporating feedback received during semester.