

## STEM Outreach and Recruitment Team (SORT)

MCB 397C, Spring 2020

Credits: 1

Class meeting times and location: Monday, 11:00AM- 11:50 AM

Room: Life Sciences South Rm. 240

<b>Instructor Information</b> Reighard Alayas C. Pullins PSM Molecular and Cellular Biology Department of Molecular and Cellular Biology University of Arizona	<b>Contact Information</b> Email: <a href="mailto:alayas@email.arizona.edu">alayas@email.arizona.edu</a>  Office Hours: Please email me before coming. Wednesday 2:30-3:30pm or By appointment Life Science South 2 <sup>nd</sup> floor lobby
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### Communicating with the Instructor

I post all general course announcements to the D2L news section. Any direct electronic correspondence from me will come from my university email account ([alayas@email.arizona.edu](mailto:alayas@email.arizona.edu)). I will make every effort to answer all emails within 24 hours. If you have not heard from me after 24 hours, **please send another email or leave a message on my voicemail.**

### Course Description

The purpose of the STEM Recruitment & Outreach Team (SORT) is to engage undergraduate students majoring in the life sciences in educational outreach by generating an interest in and promoting an understanding of the biological science topics among elementary school students, middle school students, high school students, fellow undergraduates, and the general public. In the area of recruitment (primarily the role of MCB Ambassadors) is to serve as representatives of the MCB department, and to assist current and potential future MCB students through related recruitment and outreach activities. This course will provide training in public speaking, outreach, and recruitment for participants.

### Course Goals/ Learning Objectives

In this course, you will:

- Practice effective public speaking.
- Serve as an advocate for post-secondary education and for education in science, technology, engineering, and math (“STEM”)
- Explain biological topics (e.g. concepts in biology, UA faculty research, etc.) in layman’s terms.
- Conduct basic scientific demonstrations and/or presentations in a knowledgeable and effective manner.

### Class Activities and Grading

In this course, points will be earned based on the following activities:

- **Class attendance (one point per week for 15 weeks).** Be prepared for in-class discussions by doing the assigned reading in advance. If you are not in class, you will need to contact me by email for an alternative assignment.
- **Outreach/recruitment activities throughout the semester (1 point per hour of activity, planning, preparation, and/or clean up time; 15 total hours expected).** These activities include conducting a science demonstration or serving as a volunteer at public events (like Science Nights, etc.) or at a K-12 classroom, giving a lab tour to fellow undergraduates, serving as a “resident scientist” in a K-12

classroom, tutoring underserved students in science/math, etc. A list of activities will be maintained on the course's D2L calendar. Students are expected to check the D2L site frequently for outreach activities, and are expected to update the class Activity Log at each class with activities that have been completed.

- **Elevator Pitch (5 points)**
- **The planning and presentation of a science demonstration or “Ted Talk” (5 points).** Students will identify, plan, and conduct a demonstration, talk, or social media campaign in class to gain practice in giving presentations.
- **A final film project (5 points).** Students will be required to create a 2-3 minute video on one of the following science outreach topics:
  - An interview with an MCB faculty member
  - A tour of a lab
  - Highlighting a science-related resource (such as the MCB advising office or other major advisor)
  - An educational film on how to conduct a science demonstration (for other educators)
  - An informative film that covers an MCB outreach event (Meet MCB, Festival of Books, etc.) or program from a “you should get involved in this!” standpoint.

Students' final grades will be based on 50 total points:

Assignment	Available Points
Class Attendance	15
Outreach/Recruitment Activities and Reflection	15
Elevator Pitch	5
Science Demonstration/Talk	5
Final Film Project	5
Final Course Reflection	5
<b>TOTAL:</b>	<b>50</b>

The grades available for this course (MCB 397C) are

Point Total	Grade
45-50 points	A
40-44 points	B
35-39 points	C
30-34 points	D
29 points or below	E

Incompletes (I) are only given in the specific case of a student who is passing the course and has missed a portion of the assigned work because of documented illness or other extreme cause.

### Attendance and Participation

MCB397c is a 100% engagement course where are expected to attend class ready to discuss the week's reading and participate in the related activities. As such weekly attendance and participation are required. Exceptions will be made conflicts due to University-authorized commitments (pre-approved by the UA Dean of Students), or holidays observed by organized religion with which you are affiliated provided the instructor is contacted *before* the discussion is missed, proper documentation is provided, and a make-up assignment is completed within one week of the absence. At the instructor's discretion, some form of accommodation may be made in the event of extraordinary circumstances such as serious illness, accident, or family emergency.

## Readings

All course readings will be available on D2L

## Tentative Class Schedule

Week	Date	In Class Activity	Homework Assigned This Week
1	1/20	No Class	
2	1/27	<b>Discussion:</b> Why are you here? Why is outreach important? What have you done in the past? What would you like to do in the future?	<b>Read:</b> <a href="#">Creating An Elevator Pitch - Two Minutes or Less</a> From UC Santa Barbara Career Services  <b>Read:</b> <a href="#">Two Minutes to Impress</a> by Roberta Kwok ( <i>Nature</i> 494: 137-138 (2013))
3	2/3	Guest: Nadja Anderson DNA isolation Kits	<b>Please read the above articles</b>
4	2/10	<b>The elevator speech</b> (all about you): What is it and why is it important?	<b>Prepare:</b> your 2-minute elevator speech to give in class on 2/10
5	2/17	<b>Your elevator speech</b> <ul style="list-style-type: none"> <li>• Give your elevator speech!</li> <li>• Fill out feedback forms for you peers</li> </ul>	<b>Watch:</b> <a href="#">Online Workshop: Activities and Conversations about Synthetic Biology: The Building with Biology Project (Recorded 12/8/2015)</a> Running time ~ 1 hour  <b>Read:</b> Kennedy, EB et al., "Preaching to the scientifically converted: evaluating inclusivity at science festival audiences," <i>International Journal of Science Education, Part B</i> , <b>8</b> : 14-21 (2018). <a href="https://www.instituteforlearninginnovation.org/wp-content/uploads/2019/10/R12.pdf">https://www.instituteforlearninginnovation.org/wp-content/uploads/2019/10/R12.pdf</a>

6	2/24	<b>Science demonstration: Who is our audience</b> Discuss Kennedy et al.  <b>Practice public speaking</b>	<b>Read:</b> National Science Board, "Science and Technology: Public Attitudes and Understanding," from <i>Science and Engineering Indicators 2018</i> . Read Sections on "Public Knowledge about S&T" (p. 33-50), "Public Attitudes about S&T" (p. 52-61), and select <b>one</b> S&T related issue from the list on p. 68-89 to discuss in class.  <b>Prepare:</b> Idea for your own demo or talk
7	3/2	<b>Science for the public: Know your audience</b>  <b>Practice public speaking</b>	<b>Read</b> "Misconceptions as barriers to understanding science," from <i>Science Teaching Reconsidered: A Handbook</i> , National Academies Press, 1997.  <b>Write:</b> Jot down 2 misconceptions about biology that you have heard or seen for next week's discussion
8	3/9 Spring Recess		
9	3/16	<b>Science for the public: Addressing misconceptions</b> Discuss biology misconceptions	<b>Read:</b> Lortie, C, " <a href="#">Ten simple rules for short and swift presentations</a> ," <i>PLOS: Computational Biology</i> , <b>13</b> : e1005373 (2017).
10	3/23	<b>Science communication:</b> <ul style="list-style-type: none"> <li>• Discuss science communication strategies</li> <li>• Discuss progress on presentation</li> </ul>	<b>Prepare:</b> Prepare your presentation
11	3/30	<b>Your own science presentation</b> (Demonstration or short talk) <ul style="list-style-type: none"> <li>• In class presentations to invited audience</li> </ul>	<b>Read:</b> Fuesting, MA and Diekman, AB, " <a href="#">Not By Success Alone: Role Models Provide Pathways to Communal Opportunities in STEM</a> ," <i>Personality and Social Psychology Bulletin</i> , <b>43</b> : 163-176 (2017).
12	4/6	<b>Science and young people:</b> <ul style="list-style-type: none"> <li>• Discuss being a good role model</li> </ul>	<b>Read:</b> Executive summary (p. 11-15) of <a href="#">Making Science Matter: Collaborations Between Informal Science Education Organizations and Schools</a> from

			the Center for Advancement of Informal Science Education, March 2010
13	4/13	<b>Informal science education:</b> <ul style="list-style-type: none"> <li>Discuss what makes an enriching experience</li> </ul>	<b>Read:</b> Viskontas, I, "The Challenges of Changing Minds: How Confirmation Bias and Pattern Recognition Affect Our Search for Meaning," from <i>Pseudoscience: The Conspiracy Against Science</i> (Kaufman, AB and Kaufman, JC eds), MIT Press 2018.
14	4/20	<b>Combatting Pseudoscience</b> <ul style="list-style-type: none"> <li>Discuss pseudoscience and how it affects outreach activities</li> </ul>	<b>Read:</b> Sung, V, et al., " <a href="#">Engaging the Public Where They Live: Lessons for Better Science Communication from Media Personalities and Strategists</a> ," <i>Medium</i> , July, 2018.
15	4/27	<b>Outreach beyond this course:</b> Discuss Sung, et al.	<b>Complete:</b> Film project
	5/4	<b>Reflecting on outreach experience</b> <ul style="list-style-type: none"> <li>Complete reflection in class</li> <li>Watch video presentations</li> </ul>	

**Disability Resources:** If you anticipate issues related to the format or requirements of the course, please contact me. I would like us to discuss ways to ensure your full participation in the course. If you determine that formal, disability-related accommodations are necessary, it is very important that you be registered with Disability Resources (520-621-3268; <http://drc.arizona.edu>) and notify me of your eligibility for reasonable accommodations. I can then work with you and the DRC staff to coordinate your accommodations.

**Academic Integrity:** Violations of scholastic ethics are considered serious offenses by the University of Arizona and by your instructor. All work done for this class must be your own. You may collaborate with your colleagues on class activities and projects, but your performance on all graded work should be your own, unless you are turning in a group project.

The University of Arizona Dean of Student's office has a site providing useful tips for avoiding plagiarism <http://deanofstudents.arizona.edu/helpfullinksforstudents>. Any form of cheating or plagiarism will be dealt with severely and may result in a grade of "E" for the course. For more information on the University of Arizona's academic integrity policies, please see: <http://studpubs.web.arizona.edu/policies/cacaint.htm>

### Plagiarism Prevention Software Statement

All papers submitted to the dropbox will be analyzed by Turnitin, a plagiarism-detection software. Courses that use Turnitin have been asked to include the following statement:

"If you decide to take and continue in this course, you agree to submit your papers online, when so instructed, to a plagiarism-prevention program called TurnItIn.com. When you set up your account with TurnItIn.com for this class, make sure you understand and consent to all the terms that the program provides you at that point.

You should note that TurnItIn.com – always without your name and any personal information – will retain your paper as part of their database so that students who plagiarize from it can be detected. Because of this program, the vast majority of you who do your work and cite your sources of information properly will not have to compete with students who commit undetected plagiarism. Anyone who has questions or problems with TurnItIn.com may talk privately about these with the instructor.”

**Prohibited Behavior:** *Threatening behavior is prohibited.* “Threatening behavior” is defined as any statement, communication, conduct or gesture, including those in written form, directed toward any member of the University community that causes a reasonable apprehension of physical or emotional harm to a person or property. A student can be guilty of threatening behavior even if the person who is the object of the threat does not observe or receive it, so long as a reasonable person would interpret the maker’s statement, communication, conduct or gesture as a serious expression of intent to physically harm or emotionally damage. In the event of threatening behavior by one of the students in the course, official policies and procedures will be followed as described at <http://policy.web.arizona.edu/~policy/threaten.shtml>.

**UA Nondiscrimination and Anti-harassment Policy:** The University is committed to creating and maintaining an environment free of discrimination; see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

**Additional Resources:**

UA Academic policies and procedures are available at <http://catalog.arizona.edu/policies>

Student Assistance and Advocacy information is available at <http://deanofstudents.arizona.edu/student-assistance/students/student-assistance>

**Confidentiality of Student Records:** Information on the confidentiality of student records can be found here: <http://www.registrar.arizona.edu/personal-information/family-educational-rights-and-privacy-act-1974-ferpa?topic=ferpa>

**Changes to this syllabus:** The information contained in this syllabus, other than the grade and participation policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.