

Biology 8801: Professional Development in Quantitative Biosciences

Lecture time and location : TBA

Instructor: Sean Anderson
Office hours: by appointment.

Teaching Assistants: None

Contact information:

Dr. Sean A. S. Anderson

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TOPICS: Identifying important research questions; Grant/fellowship writing

OVERVIEW

The objectives of this course are (1) to provide PhD students the tools to identify important and tractable research questions in their field and (2) for students to develop and submit a competitive graduate fellowship to address one such question. Through a series of exercises, students will broaden their ability to identify important biological challenges and to think of approaches to address them. In short, students will learn how to build a research agenda for a QBioS PhD. *This syllabus is subject to change and will be updated on Canvas.*

COURSE READING:

Critical to any scientific writing exercise is developing a clear and concise style. Doing so takes practice. There is no shortcut to clear writing – it is one of the most difficult things we do. But as a PhD student, learning how to write is a major part of your job. Useful resources include:

- Strunk and White *The Elements of Style*, a classic, compact, and indispensable resource for anyone who must write (not just scientists). It's worth getting this, reading it right away, and reading it again once per year.
- Schimel (2012) *Writing Science*, a comprehensive writing organization guide.
- Heard (2016) *The Scientist's Guide to Writing*, quickly becoming a go-to book on writing for scientists.

GRADING:

Students will be evaluated on written and oral presentations and class participation.

Written presentation The format and guidelines will be distributed in class.

Class participation will be judged by the extent to which each student participates in class discussions and peer review feedback

Grading Scale Your final grade will be assigned as a letter grade according to the following scale:

- A 90-100%
- B 80-89%
- C 70-79%
- D 60-69%
- F 0-59%

OUTLINE SCHEDULE:

Week	Topic
TBA	Setting a research agenda – how to find a ‘big idea’
TBA	Elevator pitches for your Big Idea
TBA	Labor day – no class
TBA	GRFP application discussion (due Oct 20 th) [typically 1 or 2 students have live applications to review]
TBA	Summarizing your work - specific aims page
TBA	Hypothesis-driven and discovery science Read: Platt (1964) https://www.science.org/doi/10.1126/science.146.3642.347
TBA	Reviewing specific aims pages, focus on testable hypotheses
TBA	Fall break – no class
TBA	Fellowship/grant review process and currencies (significance, innovation, approach, etc)
TBA	‘Good grant / bad grant’ discussion
TBA	reviewing specific aims pages (approaching final ‘review panel’)
TBA	Grant review process and prep for ‘peer review panel’

TBA	Peer review panel (group 1)
TBA	Peer review panel (group 2)
TBA	Discussion on the process of peer review (articles, grants, fellowships)
TBA	debrief

COURSE EXPECTATIONS & GUIDELINES

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech's Academic Honor Code, please visit <http://www.catalog.gatech.edu/policies/honor-code/> or <http://www.catalog.gatech.edu/rules/18/>.

Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or <http://disabilityservices.gatech.edu/>, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Attendance and/or Participation

Regular attendance and participation are expected. Please also see <http://www.catalog.gatech.edu/rules/4/> for more information about institute expectations and restrictions around attendance, including information about excused absences.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

Preparation of paper and presentations involves long time effort, therefore the due date will not be extended. Rescheduling an exam due to an “approved Institute activities” (e.g. field trips and athletic events, and religious observances, see <http://www.catalog.gatech.edu/rules/4/> for more information) must be done well in advance of the exam. Missed exam without prior approval will receive a zero. If you miss exam due to illness, proper documentation from The Office of Dean of Student is required for a make-up exam or another assessment mechanism for that portion of the final grade.

Student-Faculty Expectations Agreement

At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See <http://www.catalog.gatech.edu/rules/22/> for an articulation of some basic expectation that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, we encourage you to remain committed to the ideals of Georgia Tech while in this class.

Student Use of Mobile Devices in the Classroom

This course will make usage of laptop computers and mobile devices in some classes, so they are not prohibited; however, they may not be used in a manner that would be distracting to other students in the class, such as to watch non-course related videos, facebook pages, etc.

Statement of Intent for Inclusivity

As members of the Georgia Tech community, we are committed to creating a learning environment in which all of our students feel safe and included. Because we are individuals with varying needs, we rely on your feedback to achieve this goal. To that end, we invite you to enter into dialogue with us about the things we can stop, start, and continue doing to make our classroom an environment in which every student feels valued and can engage actively in our learning community.

Campus Resources for Students

Academic support

- Center for Academic Success <http://success.gatech.edu>
- Residence Life's Learning Assistance Program
<https://housing.gatech.edu/learning-assistance-program>
- OMED: Educational Services (<http://omed.gatech.edu/programs/academic-support>)
- Communication Center (<http://www.communicationcenter.gatech.edu>)
- Academic advisors for your major (<http://advising.gatech.edu/>)

Personal Support

- The Office of the Dean of Students: <http://studentlife.gatech.edu/content/services>; 404-894-6367;
- Counseling Center: <http://counseling.gatech.edu>; 404-894-2575;
- Students' Temporary Assistance and Resources (STAR):
<http://studentlife.gatech.edu/content/need-help>
- Stamps Health Services: <https://health.gatech.edu>; 404-894-1420
- OMED: Educational Services: <http://www.omed.gatech.edu>
- Women's Resource Center: <http://www.womenscenter.gatech.edu>; 404-385-0230
- LGBTQIA Resource Center: <http://lgbtqia.gatech.edu/>; 404-385-2679
- Veteran's Resource Center: <http://veterans.gatech.edu/>; 404-385-2067
- Georgia Tech Police: 404-894-2500