***If there is a topic missing that you wish was part of this course, please let me know and I’ll consider adding or replacing one with it if there is sufficient interest.***

Please let me know ASAP if a link is not working. Make sure you are logged into your NCSU google account when accessing shared docs on google drive. Complete all readings and other assignments before each class meeting.

We will meet by Zoom Thursday’s from 8:30-10:20 am and, if possible, in-person outdoors if convenient for all. Zoom link is below and on the Moodle site. Same link for all meetings. Must access via ncsu.edu account at [https://ncsu.zoom.us/.](https://ncsu.zoom.us/)

<https://ncsu.zoom.us/j/94907504510?pwd=L3V2anR0QkZQK1VuRThFaHJrRGpJQT09>

Meeting ID: 949 0750 4510

Passcode: 741776

**Required textbook:** A Field Guide To Grad School: Uncovering The Hidden Curriculum. 2020.

By Calarco, Jessica McCrory. Princeton University Press. ISBN 9780691201092/0691201099.

Other readings are provided via hyperlinks in this document.

**August 25: Introduction to the course and tips on succeeding in graduate school**

***Agenda:***

What should be taught in graduate school but often isn’t, until now!

***Assignments:***

Read the graduate student handbook and we can discuss questions you have in class.

Come to class with three topics you hope this class will cover.

Come to class with three important character traits needed to succeed in graduate school.

Complete the readings below, which are different perspectives but all useful.

Complete the Contact and Background Information [Google Sheet](https://docs.google.com/spreadsheets/d/1TeJtdfpg7Wj84EOcL8cIxKRKAyvnrp955cBuuN2eoVg/edit?usp=sharing)

***Readings:***

[Biology/FWCB Graduate Student Handbook](https://cals.ncsu.edu/applied-ecology/wp-content/uploads/sites/4/2019/08/Biology-and-FWCB-Graduate-Student-Handbook.pdf)

[Some Modest Advice for Graduate Students](http://stearnslab.yale.edu/some-modest-advice-graduate-students) by Stearns

[Some Acynical Advice for Graduate Students](http://faculty.washington.edu/hueyrb/pdfs/reply.pdf) by Huey

[What not to do in graduate school](https://media.nature.com/original/magazine-assets/d41586-019-02255-7/d41586-019-02255-7.pdf) by Karawdeniya

[Introduction](https://drive.google.com/file/d/16914pJOqxU9DzCxexV_hluuCWSGajfn2/view?usp=sharing) in [A field guide to grad school](https://catalog.lib.ncsu.edu/catalog/NCSU5369782) by J. Calarco

Other resources:

**NCSU** [New Student Survival Guide](https://grad.ncsu.edu/students/survival-guide/)

[Inter-Institutional Program](https://studentservices.ncsu.edu/your-classes/exchange-programs/inter-institutional-program/) **–** courses at UNC-Chapel Hill, Duke, NCCC, UNCC, UNCG

[On Being a Successful Graduate Student in the Sciences](https://cpb-us-e1.wpmucdn.com/sites.ucsc.edu/dist/4/216/files/2019/12/Thompson-On-being-a-successful-graduate-student-v9.pdf) by Thompson

**September 1: Building your team - advisor, committee, your peers, and you!**

***Agenda:***

∙ We will discuss committee formation and how you should use your committee to support your research and graduate success.

∙ Developing an agenda for your committee meetings? How often should you have a committee meeting? Setting goals and developing a timeline for completion.

∙ Mentor-mentee communication. View [Powerpoint](https://drive.google.com/file/d/14qNK4KpkqeYZPX9UooQUm06DMIcHS7Gh/view?usp=sharing) download/edit [mentor-mentee worksheets](https://drive.google.com/file/d/1KjleKM-MNR104GJ-Iv9s4TZ6zWRe2-VQ/view?usp=sharing).

∙ Building a peer network within your lab, department, and the program and university.

∙ Individual Development Plan ([myIDP](https://myidp.sciencecareers.org/)) What is an [IDP](https://www.sciencemag.org/careers/2012/09/you-need-game-plan?_ga=2.197862511.1503656563.1629765317-416992150.1625204704)? Why are they [important](https://drive.google.com/file/d/15os9Cq39KHqkA9OJwEmu2Ug2JWAW3zv6/view?usp=sharing)?

∙ Alternatively, you can use [this template](https://docs.google.com/document/d/1hXRbIggkQlFxSS1RIms_LOb0RmJZiZbZ/edit?usp=sharing&ouid=110931049096349262175&rtpof=true&sd=true) for creating an IDP

∙ Other things you can use to build a team: [mentor mapping worksheet](https://docs.google.com/document/d/1cJnibQkjkSrAz2HggDgqG0oUwG99dB0B/edit?usp=sharing&ouid=110931049096349262175&rtpof=true&sd=true), shared expectations [worksheet](https://docs.google.com/document/d/1ks7d7TIKsc1IgsnAEe90JxQDDdx_CpOQ/edit?usp=sharing&ouid=110931049096349262175&rtpof=true&sd=true), and a mentoring contract or [compact](https://docs.google.com/document/d/1l0w98nAFxAGHuq5rcaqZ1jDp5nQG-lui/edit?usp=sharing&ouid=110931049096349262175&rtpof=true&sd=true), usually established by the mentor, but does not have to be.

***Assignment:***

1) Come to class ready to discuss 3 potential committee members and briefly describe what they would contribute to your graduate program.

2) Begin the mentor-mentee worksheet, mentor mapping, or one of the development plans.

3) Take the [free Disc](https://discpersonalitytesting.com/free-disc-test/) personality test or this [one](https://docs.google.com/document/d/15zYA83mT3zLCnFIF2hhOHbK9zM0hlhkz/edit?usp=sharing&ouid=110931049096349262175&rtpof=true&sd=true).

***Readings:***

[Chapter 2](https://drive.google.com/file/d/15ZU1I-cWxeJOqG9tJqDp7aReYyVEwwQv/view?usp=sharing) in [A field guide to grad school](https://catalog.lib.ncsu.edu/catalog/NCSU5369782) by J. Calarco

[Choosing and Managing Your Committee](http://appliedecology.cals.ncsu.edu/absci/wp-content/uploads/Choosing-and-Managing-Your-Committee.pdf) by Peters (chapter 15)

Other resources to build your team [National Center for Faculty Development and Diversity](https://ofd.ncsu.edu/events-and-programs/ncfdd-membership/). It is free for all NCSU graduate students, postdoctoral scholars, and faculty. Provides professional development, training, and mentoring that could increase your productivity and your sense of well-being. The [National Research Mentoring Network](https://nrmnet.net/)is a free network to receive and provide mentoring at various stages.

More on multiple mentors

[A Mentoring Model for Enhancing Success in Graduate Education](https://pubs.asha.org/doi/10.1044/cicsd_35_S_4) by Wright-Harp and Cole

[Beyond the Myth of the Perfect Mentor](https://drive.google.com/file/d/1k6fl4WdB0UZrbdMj8XZdpU6ODnRoWoMH/view?usp=sharing): Building a Network of Developmental Relationships by Hill and Kamprath

What to do if conflicts arise. If possible, try to resolve them with the person, your advisor, your committee, Departmental Graduate Program (DGP) representative, or Department Head. For issues involving sex-based discrimination, racial harassment, or other abuse reach out to the Office for Institutional Equity and Diversity ([Title IX office](https://diversity.ncsu.edu/title-ix-consultation-and-guidance/)) Email: equalopportunity@ncsu.edu Phone: 919-513-0574. Another good option for independent advice on resolving conflicts with your advisor or others in your department or program is the [Student](https://ombuds-temp.dasa.ncsu.edu/) and [Faculty](https://facultyombuds.ncsu.edu/) Ombuds Office. For concerns related to personal safety of yourself or others call 911, the above resources are also required to report threats to personal safety to the police.

**September 8:** **NCSU Library Virtual Tour of Resources**

***Agenda:***

∙ NCSU library resources and [data management](http://go.ncsu.edu/aec502_libraryslides2021) by Tisha Mentnech (tdmentne@ncsu.edu)

∙ Before class please watch this [video](https://www.lib.ncsu.edu/videos/orientation-libraries), complete this [survey](https://forms.gle/dNUqusLHB637Dkwh6) before September 1st, and review the [NCSU libraries info on data management](https://www.lib.ncsu.edu/do/data-management).

***Assignments:***

1) Before this class be sure to visit the NCSU library website and identify at least one question to ask the library staff. Also, identify a data archive (e.g., [Environmental Data Initiative](https://environmentaldatainitiative.org/), or [Dryad](https://datadryad.org/)) that you are likely to use for archiving your published data.

2) Reference/citation management software. Are you familiar with any of these [here](https://www.lib.ncsu.edu/do/citation-management)?

3) Read at least one of the three articles below.

a) [Some Simple Guidelines for Effective Data Management](https://esajournals.onlinelibrary.wiley.com/doi/epdf/10.1890/0012-9623-90.2.205) by Borer et al.

b) [Data Organization in Spreadsheets](https://www.tandfonline.com/doi/full/10.1080/00031305.2017.1375989) by Broman and Woo

c) [Ten commandments for good data management](https://dynamicecology.wordpress.com/2016/08/22/ten-commandments-for-good-data-management/) by Brian McGill

4) Using google drive, create a folder for your research data under “[Shared drives](https://support.google.com/a/users/answer/7212025?hl=en)” not “My Drive” that is shared with your advisor and other team members.

\*\*By Sept 12th, upload a sample of your current or past writing to the [folder number](https://drive.google.com/drive/folders/15QNQ8aJB45h5ai2WQ_Bjb3bf7w0zh-eL?usp=sharing) for your[working group](https://docs.google.com/spreadsheets/d/1CJvxxiPWf86-eQbmRk2-eQYeuEL_5UCD5ei1mCQ9C3o/edit?usp=sharing).The writing sample can be something you are currently working on (preferably) or something written in the past (undergraduate thesis, etc.). For example, an abstract or a hypotheses section for your thesis research proposal. Members of your working group will provide feedback and we will discuss this in class. This feedback – as much as is possible – should draw on the recommendations from the readings for 22 Sep.

**\*\*\*REMINDER: Draft of grant proposal DUE first week in October**

**Other resources:**

Resources and a place to archive data sets [Environmental Data Initiative](https://environmentaldatainitiative.org/)

[Preparing Environmental Data Sets to Archive](https://daac.ornl.gov/datamanagement/)

Data cleaning [tools](https://datacarpentry.org/OpenRefine-ecology-lesson/) and [resources](https://daac.ornl.gov/datamanagement/)

Sharing your [code](https://drive.google.com/file/d/16Bp73jtAgZRSElkZkGu9AeU4NVAq-x3O/view?usp=sharing) for published or archived data

**September 15: Developing research ideas and testable hypothesis**

*What's worth being curious about? S.G. Fisher 1997 JNABS*

***Agenda:***

Where do ideas come from – experiments, theory, natural history, your advisor’s laptop?

Do strolls outdoors really help as they did Darwin? What about podcasts, colleagues, conferences.

Discuss the different types of graduate projects, how to develop ideas, and how to formulate hypotheses.

Discussions in small groups and then the entire class.

Powerpoint [file](https://docs.google.com/presentation/d/1OXqgTsMsIsTNjsoOdarpAyglZQcUj27t/edit?usp=sharing&ouid=110931049096349262175&rtpof=true&sd=true) shared in class.

***Assignment:***

1) Before class upload [here](https://docs.google.com/spreadsheets/d/16ulFmhPFlqH0XFLeQo-5JI9XfFkkao-qN3L2T4hdyzg/edit?usp=sharing) a potential title for your thesis, dissertation, or proposal AND 1-2 potential hypotheses that might form the core of your thesis, dissertation, or research proposal.

***Readings:***

[Biology must generate ideas as well as data](https://drive.google.com/file/d/1ei3sFA2o_6YqGkATIZzKW1GSGMTFZ3I2/view?usp=sharing) by Nurse

[The Diversity–Innovation Paradox in Science](https://www.pnas.org/content/pnas/117/17/9284.full.pdf) by Hofstra et al.

[The Thesis Topic – Finding It](http://appliedecology.cals.ncsu.edu/absci/wp-content/uploads/The-Thesis-Topic-Finding-It.pdf) by Peters

[The use of hypotheses in ecology](https://appliedecology.cals.ncsu.edu/absci/wp-content/uploads/Grogan-2005.pdf)by Grogan

[Distorting the Process of Scientific Inquiry](https://drive.google.com/file/d/1sufwDiMa5HuZc3u6446TSkMkCrbARW1C/view?usp=sharing) by Hutto

[Hypotheses vs Predictions](https://drive.google.com/file/d/1TsnZDpwAWV3rE2K0pFD_G29O1DFKN_Vh/view?usp=sharing) by Rosenbaum

[Testing the null hypothesis](https://drive.google.com/file/d/109hSJ-vA2IWgnpOAlA2bH06j9bs5J4u0/view?usp=sharing) by Wilkinson

[A guide to increased creativity in research - inspiration or perspiration](https://drive.google.com/file/d/1s0ODPjQ0HUedIqSV6-Cj6NPVC3_W296Q/view?usp=sharing) by Loehle

[Scientific Innovation and Creativity: A Zoologist's Point of View](https://drive.google.com/file/d/1TrBP9RFprX7_2oMit90MSQFcK7voVpo2/view?usp=sharing) by Bartholomew

***Other resources:***

[How to craft a winning title](http://www.wtamu.edu/webres/File/Academics/Graduate%20School/Sponsored%20Research%20Services/Craft_A_Winning_Title.pdf)

[Kropotkin Was No Crackpot](https://drive.google.com/file/d/1kiGNtVFOtUnxcyazJ7OHxnPMeKA62WsE/view?usp=sharing) by Gould

**September 22: Scientific Writing – *Note these are extensive readings this week***

Possible guest attending

*Scientific writing is wild because you’ll read four articles just to write one sentence. A. Harriot 2020*

Upload your comments to your group's folder number within the [Working Groups folder](https://drive.google.com/drive/folders/15QNQ8aJB45h5ai2WQ_Bjb3bf7w0zh-eL?usp=sharing).

∙ Discussion of scientific writing based on the readings, reference software, other topics class wants to discuss about writing.

∙ Small-group work in-class. Your colleagues will provide feedback and we will discuss this in class. This feedback – as much as is possible – should draw on the readings for this week. Be as specific as possible in referring to the book readings.

\*\*Based on your working group comments, re-write or edit your short writing sample. Reupload the revised version before class. Again, this feedback – as much as is possible – should draw on the readings for this week.\*\*

***Readings***

[**Chapter 7**](https://drive.google.com/file/d/15nPcF-LLmYcH_ItUc52n4fCOHzRP4sD7/view?usp=sharing)in [A field guide to grad school](https://catalog.lib.ncsu.edu/catalog/NCSU5369782) by J. Calarco

[The Scientist’s Guide to Writing](https://appliedecology.cals.ncsu.edu/absci/wp-content/uploads/Heard-1-28.pdf)

[The Scientist’s Guide to Writing – 2](https://appliedecology.cals.ncsu.edu/absci/wp-content/uploads/The-scientists-guide-to-writing-30-54-and-182-189.pdf)

Writing Science: How to write papers that get cited and proposals that get funded - pages [3-25](https://appliedecology.cals.ncsu.edu/absci/wp-content/uploads/Schimel-3-25.pdf), [104-132](https://appliedecology.cals.ncsu.edu/absci/wp-content/uploads/Loehle-34-64-1.pdf)

[Schimel in a Sheet](https://drive.google.com/file/d/13xCBsIrDj53giAQMiQ_4OQl1eY4O2UGW/view?usp=sharing) by Schimel

[Simple rules for concise scientific writing](https://drive.google.com/file/d/1gYDTQgheAVwrih3OjuyZI839GZ8a6qBb/view?usp=sharing) by Hotaling

How to write consistently boring [scientific literature](https://drive.google.com/file/d/1T2UWbSyGfhTMtpqOPwwJKNTGev0rHEtP/view?usp=sharing) by Sand-Jensen

***Jargon and Acronyms are to be avoided, just don’t do it!***

[The growth of acronyms in the scientific literature](https://drive.google.com/file/d/1G0aGh6imwAYZFIiqGFn16z9lSdNwQJ9S/view?usp=sharing) by Barnett and Doubleday

[Quantifying scientific jargon](https://drive.google.com/file/d/1LaH5jkvvLm67K3_Slv6mE-V18zYvSUlU/view?usp=sharing) by Willoughby et al.

[Specialized terminology reduces the number of citations of scientific papers](https://drive.google.com/file/d/1JdBpaHA96Kl8e8DtR7sXr4_WMdVG-QJ5/view?usp=sharing) by Martínez and Mammola

[Word replacements to reduce jargon](https://docs.google.com/spreadsheets/d/10uHsWZaCvKDIPixMLaIA8R1AEbzzCMISCY23WQMcKaA/edit?usp=sharing) by Lafferty

***Review papers have a purpose and get cited but unintended consequences***

[Creative destruction: the structural consequences of scientific curation](https://journals.sagepub.com/doi/10.1177/0003122421996323) by McMahan and McFarland

***Additional collection of articles about science writing you may find useful:***

[Science Editor Sacha Vignieri Writing Tips](https://drive.google.com/file/d/1GT3icr3zR2NVp3GcT9V-IJezx0O0hUYo/view?usp=sharing)

[Writing with precision, clarity, and economy](https://drive.google.com/file/d/1cbMqLOMnd-TAdCocYoIPG7i9xezTeOS_/view?usp=sharing) by Mack

[Thoughtful Writing](https://drive.google.com/file/d/1ERZq_6mgx_CHqn76-Ab_KQuVO69fffkJ/view?usp=sharing) by Hammond

[A Collection of Grammatical Points](https://drive.google.com/file/d/1guNOSizRhrte7_OpTmD-yvjWpEjkN9bH/view?usp=sharing) by Goldwasser

[BES Writing Tips for Researchers](https://drive.google.com/file/d/1X60vGPNyiZ4Ap65SZp0NzJwCJqFz14zg/view?usp=sharing) by Sayer

[Ten simple rules for structuring papers](https://drive.google.com/file/d/1F7OrkhZdG1h3zG9q0a7EPd_XMzQoaKR7/view?usp=sharing) by Mensh and Kording

[Some well-known tricks for clear writing](https://dynamicecology.wordpress.com/2012/11/14/clear-writing/) and [The 5 pivotal paragraphs in a paper](https://dynamicecology.wordpress.com/2016/02/24/the-5-pivotal-paragraphs-in-a-paper/)

by Brian McGill

Writing resources here at NCSU

The [Graduate School](https://grad.ncsu.edu/professional-development/writing-support/) and Libraries Writing Support

**September 29: Grant Proposal Writing**

Possible guest attending

**Agenda**

∙ Introduction to grant proposal writing and how it differs from writing a journal article.

∙ The conceptual framework or hook, background, funnels, methods, study system, repetition is okay, feasibility, timeline, budget.

∙ Other items to discuss – proposal personal statements, curriculum vitae vs resume, and budgets, etc.

***Assignment:***

1) Before class identify which grant competition/agency you would like to submit a proposal to and add the guidelines or the request for proposals (RFP) to the[**shared Excel file**](https://docs.google.com/spreadsheets/d/1Os1a36ELmx3vIj5fAm7HlNkohPdwcRQFS5YoMDzVkgA/edit?usp=sharing)**.**

***Readings:***

[Finding, applying for, winning a fellowship](http://pfforphds.com/fellowship-application/)and [why you should apply even if fully funded](http://pfforphds.com/why-you-should-apply-for-fellowships-even-if-youre-fully-funded/)

[Secrets to writing a winning grant](https://drive.google.com/file/d/1XxNTrt8ourCzjuxDwcSutVzUal1WRWra/view?usp=sharing)

[Ten Simple Rules for Getting Grants](http://www.ploscompbiol.org/article/fetchObject.action?uri=info:doi/10.1371/journal.pcbi.0020012&representation=PDF)

[Tips on Increasing Funding Success](http://appliedecology.cals.ncsu.edu/absci/wp-content/uploads/ESA-Bulletin-Strauss-on-funding.pdf)

Chapter 6, [Pages 161-176](https://drive.google.com/file/d/1YK6tAVsn7u_-kaS_5Hs8A7G9YuSKsLdA/view?usp=sharing) in A field guide to grad school by Calarco

[National Science Foundation (NSF) Graduate Research Fellowship Proposal (GRFP)](https://www.nsfgrfp.org/) – Select Solicitation, then scroll to: VI. Application Review Information. A. Merit Review Principles and Criteria

***Other information:***

NSF GRFP application <https://www.nsfgrfp.org/> - for those applying here is the [link](https://www.nsfgrfp.org/) to the application materials and the [merit review](https://www.nsfgrfp.org/applicants/merit-review-criteria/) information on that site.

Managing citations: [Zotero](https://www.lib.ncsu.edu/citation-management/zotero), Refworks, Endnote. See [link](https://libguides.wustl.edu/choose) for a comparison by WSL libraries

\*[Writing successful science proposals](https://catalog.lib.ncsu.edu/catalog/NCSU4345710) by Friedland and Folt

*\*This is a short, easy to read book that is very useful.*

**October 6: Grant Proposal Review Process**

***Readings:***

[How to review a grant proposal](https://sociobiology.wordpress.com/2012/09/22/how-to-review-a-grant-proposal/)

[NSF tips for reviewers](https://tipsforreviewers.nsf.gov/) video and quiz

[What do grant reviewers really want, anyway?](http://appliedecology.cals.ncsu.edu/absci/wp-content/uploads/What_Do_Grant_Reviewers_Really_Want_Anyway.pdf)
[Tell me again what “risky” or “potentially transformative” research is?](https://dynamicecology.wordpress.com/2018/07/26/tell-me-again-what-risky-or-potentially-transformative-research-is/)

[In praise of the red pen: editing as an act of caring.](https://scientistseessquirrel.wordpress.com/2020/03/03/in-praise-of-the-red-pen-editing-as-an-act-of-caring/)

[Transformative Research Is Not Easily Predicted](https://drive.google.com/file/d/19f75lZ5XSYnqikxD_jVKTHqgWDO5PFXa/view?usp=sharing)

[AEC 502 instructions for reviewing proposals](https://docs.google.com/document/d/1VMz4PLllpZ-QWgt4SBb3A-LtEJ-U_xCH/edit?usp=sharing&ouid=110931049096349262175&rtpof=true&sd=true)

Answer three questions on this [google form](https://forms.gle/U5N7kbUKbjgNpW5p8)[2022](https://drive.google.com/drive/folders/1_mbeBac1Kyqrw6WZJOjM6zZIOfvPieg_?usp=sharing)

**\*\* October 6st by 5 pm upload your proposal to the shared Google folder named “**[**Save Proposals here**](https://drive.google.com/drive/folders/11BvalsbpORx7_Pruw303OahZq2ZwAIOh?usp=sharing)**”, then select the 13 Oct. folder if your proposal deadline is before Oct. 20, or select the 20 Oct. folder if your deadline is later in the year or next spring. \*\***

**October 13: Panel Review Day 1**

**The day before upload your proposal reviews to the folders named** [**13 Oct SUBMITTED REVIEWS**](https://drive.google.com/drive/folders/14X65L5QT-zC5NHCL-veJ_4pKruP5lGIj?usp=sharing)

∙ Panel review/discussion

∙ Anyone submitting an NSF GRFP and anyone who also has an upcoming deadline in early October will be reviewed this day.

**October 20: Panel Review Day 2**

**The day before upload your proposal reviews to the folders named** [**20 Oct SUBMITTED REVIEWS**](https://drive.google.com/drive/folders/1B8JIZdeUcZJtkDUxgO_mCdKG-_8fsyuw?usp=sharing)

∙ Panel review/discussion

∙ Anyone submitting with a deadline later than 20 October will be reviewed this day.

**October 27: Diversity, Equity and Inclusivity and the AGEP-NC**

∙ An open and wide-ranging discussion on diversity, equity and inclusivity

∙ Complete [NCSU Required DEI Training](https://diversity.ncsu.edu/cultural-competence-training/) by [Office for Institutional Equity and Diversity](https://diversity.ncsu.edu/)

∙ Discussion of the goals of the [AGEP-NC Program](https://agep-nc.org/index.php/agep-nc-alliance/resources/)

∙ Broader Impacts and grant proposal merit review criteria

***Readings:***

[Racism, inequity, injustice, and land-grant universities](https://www.hcn.org/issues/52.4/indigenous-affairs-education-land-grab-universities?fbclid=IwAR1-rIrsrqqL2yLI0EO5xLHQ5_fM7Hc7pTtQqL-5jHN0ZLXFCeaS1eD775U) by Lee and Ahtone

[Higher Ed’s Most Common Rationale for Diversity Favors White Students More than Black](https://www.diverseeducation.com/latest-news/article/15109178/higher-eds-most-common-rationale-for-diversity-favors-white-students-more-than-black)

[Ten simple rules for building an anti-racist lab](https://ecoevorxiv.org/4a9p8/?fbclid=IwAR1aVIM3I3Ieyyb4VYSVXyCdjAcFNP0iy8dxu1HjAU9s66yrt8VAJCQH_PQ) by Chaudhary and Berhe

[Assimilating the culture of no culture in science: Feminist interventions in (de)mentoring graduate women](https://www.researchgate.net/publication/276293664_Subramaniam_B_Wyer_M_1998_Assimilating_the_culture_of_no_culture_in_science_Feminist_interventions_in_dementoring_graduate_women_Feminist_Teacher_121_12-28) by Subramaniam and Wyer

[Visibility matters: increasing knowledge of women’s contributions to ecology](https://drive.google.com/file/d/1dl9uw5ZEtABsIyEBCsuz9PMDyhQCd9yC/view?usp=sharing) by Damschen

[LGBTQ scientists are still left out](https://drive.google.com/file/d/1jsIXhBRAVNps5g290mb2m3qqi662N25_/view?usp=sharing) by Freeman

Others:

[Decoloniality and anti-oppressive practices for a more ethical ecology.](https://www.nature.com/articles/s41559-021-01460-w) by Trisos et al.

**November 3: Wellness Day**

**November 10: Science communication**

 Presentation basics: website, poster design, lightning talks, etc.

**Guest instructor:** AEC Science Communication Director Michelle Jewell

***Agenda:***

Website design and key presentation skills.

Nuts and bolts of giving a poster or oral presentation at a conference.

How to give a lightning talk in particular.

Come to class ready to show fellow classmates and discuss aspects of your three favorite academic websites or other science media.

***Readings:***

[Deliver A Clear Message](https://drive.google.com/file/d/16CZaKot747uWebRihZGMQpHMU7I2Kc0w/view?usp=sharing) from *Escape From The Ivory Tower* by Nancy Baron

[The Cognitive Style of Powerpoint](https://drive.google.com/file/d/186_IdIjWBIkyCwiEFUd0-VGFkjXhvccs/view?usp=sharing) by Edward Tufte

[Visual and Statistical Thinking](https://drive.google.com/file/d/1BJy3xrbU5uT07xvMZm2qBzctD8PTfDZZ/view?usp=sharing) by Edward Tufte \*fundamentals of graphing and displaying data

[Testing how different narrative perspectives achieve communication objectives and goals in online natural science videos](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0257866) by Ruzi et al.

[Using social media to promote academic research: Identifying the benefits of twitter for sharing academic work](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0229446) by Klar

[How to prepare for lightning talk](https://www.semrush.com/blog/16-ways-to-prepare-for-a-lightning-talk/)

[Giving a good lightening talk](https://software.ac.uk/home/cw11/giving-good-lightning-talk)

**November 17: Publishing & Reviewing Manuscripts**

*You're afraid of making mistakes. Don't be. Mistakes can be profited by. Man, when I was young I shoved my ignorance in people's faces. They beat me with sticks. By the time I was forty my blunt instrument had been honed to a fine cutting point for me. If you hide your ignorance, no one will hit you and you'll never learn. Ray Bradbury's "Fahrenheit 451"*

∙ A wide-ranging discussion on publishing in science. We will start with a discussion on how/why writing (and reading and reviewing) a manuscripts is different from grant proposals. The consequences of not publishing!

∙ Second, we will talk generally about the state of scientific publishing, specifically limitations, weaknesses and challenges in the enterprise, such as citing papers so you do not offend those you don’t cite given the massive options of papers to cite.

∙ Third, we will discuss how to read a scientific paper.

∙ Finally, we will close by delving into overcoming the ambiguities with respect to authorship.

***Assignments:***

1) Create an ORCID ID using this [link](https://www.lib.ncsu.edu/orcid-services-team)

***Readings:***

[Manuscript Earth](https://drive.google.com/file/d/1beLdZsjPp5X9jXL1bNfgxbzsES_gEfKn/view?usp=sharing)

Chapter 8, [Pages 212-264](https://drive.google.com/file/d/1lSjMNnVJJXF96-Y0U6Ylea2hPARzkq8W/view?usp=sharing) in A field guide to grad school by Calarco

[The 4 Pillars of Scholarly Publishing](https://ojs.library.queensu.ca/index.php/IEE/article/view/4628)

[How to decide where to submit a paper](https://dynamicecology.wordpress.com/2013/01/24/advice-how-to-decide-where-to-submit-your-paper/)

[Why MacArthur and Wilson got credit for Island Biogeography Theory and not Munroe](https://drive.google.com/file/d/1Plhgugq_lsiD13tAZv9reDZX4h_qzfgy/view?usp=sharing)

[Writing an effective response to a manuscript review](https://www.journals.uchicago.edu/doi/abs/10.1086/688886)

[How to seriously read a scientific paper](http://www.sciencemag.org/careers/2016/03/how-seriously-read-scientific-paper)

[How to Read and Understand a Scientific Paper: A Step-by-Step Guide for Non-Scientists](https://www.huffingtonpost.com/jennifer-raff/how-to-read-and-understand-a-scientific-paper_b_5501628.html)

[How should we deal with the growing peer-review problem?](http://appliedecology.cals.ncsu.edu/absci/wp-content/uploads/How-should-we-deal-with-the-growing-peer-review-problem.pdf)

[Authorship guidelines](https://provost.yale.edu/policies/academic-integrity/guidance-authorship-scholarly-or-scientific-publications) and some good [Authorship readings](https://drive.google.com/file/d/1BLWjgZ-gxxFr-ioxeZtsGGppkYEa1fYs/view?usp=sharing)

Scholarly Sharing [NCSU libraries](https://www.lib.ncsu.edu/do/open-research/scholarly-sharing/introduction), Research Gate [Shallow Dive](https://docs.google.com/document/d/1SdxX3XaEXXHs5okBsRXevHrP_IPM_1KgA5DXRmq1xk8/edit), [Preprint Servers](https://asapbio.org/preprint-servers)

***A collection of other articles you may find useful:***

[Last and corresponding authorship practices](https://drive.google.com/file/d/1bcqBooXpwjxGz3_8fh79z4df531cJnbL/view?usp=sharing) by Duffy

[Effects of Inferred Gender on Patterns of Co-Authorship](https://drive.google.com/file/d/1FdkTCtXWE0oJ0l5uuCXxLz4Fm7csBxNa/view?usp=sharing) by Frances et al.

[8 Reasons why journals reject manuscripts](https://drive.google.com/file/d/1h-AAOM7ffsbFECwZRjFD_pV-WRMJyU6S/view?usp=sharing)

[Writing a scientific paper, step by painful step](https://trophiccascades.forestry.oregonstate.edu/sites/trophic/files/Lafferty_WritingScientificPaper.pdf) by Lafferty

**December 1: Safety and Mentor-mentee communication part 2, and What’s a curriculum vitae (CV)? Networking and planning ahead for the job market**

**\*\*Have a CV or Resume reading to share during breakouts**

***Agenda:***

Getting to know yourself and getting to know your mentor. What do you know now?

Communication styles, which ones resonate with you?

Mentoring undergraduates, or learning to be a mentor (complete readings below)

Mentor and mentee contracts or [compact](https://docs.google.com/document/d/1l0w98nAFxAGHuq5rcaqZ1jDp5nQG-lui/edit?usp=sharing&ouid=110931049096349262175&rtpof=true&sd=true), or shared expectations for you and/or undergraduates working with you.

Field and lab safety plans

***Assignments:***

Be sure to complete either the IDP, [mentor-mentee communication worksheets](https://drive.google.com/file/d/1KjleKM-MNR104GJ-Iv9s4TZ6zWRe2-VQ/view?usp=sharing), shared expectations [worksheet](https://docs.google.com/document/d/1ks7d7TIKsc1IgsnAEe90JxQDDdx_CpOQ/edit?usp=sharing&ouid=110931049096349262175&rtpof=true&sd=true), or [mentor mapping worksheet](https://docs.google.com/document/d/1cJnibQkjkSrAz2HggDgqG0oUwG99dB0B/edit?usp=sharing&ouid=110931049096349262175&rtpof=true&sd=true) as we will discuss these during class.

Take the [DISC test](https://discpersonalitytesting.com/free-disc-test/) – Dominant, Influencing, Steady, Compliant

Which DISC styles do you (or your mentors) identify with in this [video](https://www.youtube.com/watch?v=_VqvjeXgUi4)?

Take the [Social Styles quiz](https://docs.google.com/document/d/1cTWewS48qqfp6JqCd5r8VI6sk5s-zGcT/edit?usp=sharing&ouid=110931049096349262175&rtpof=true&sd=true) - Control/Emote and Ask/Tell, and [use this information](https://docs.google.com/document/d/1cSXwCqkrNpwyEPmIBzhgM2Otuo6_F6l2/edit?usp=sharing&ouid=110931049096349262175&rtpof=true&sd=true) to interpret your score.

Which Social Styles do you (or your mentors) identify with in [this video](https://www.youtube.com/watch?v=t15w2isdWLI)?

Think about how you can use this information from the [DISC](https://www.youtube.com/watch?v=g7uZyXH0qQo) and [Social](https://www.youtube.com/watch?v=0m_sY7C4n60) Styles tests to enhance your interactions, communication, and success in graduate school.

Optional Reading ["How accurate are personality tests?" (Scientific American)](https://www.scientificamerican.com/article/how-accurate-are-personality-tests/)

**Required readings:**

[Modern graduate student mentors](https://drive.google.com/file/d/17H_iR05PJ1YI_MkdwezJ5Pm6fKtKFSil/view?usp=sharing) by Weigel

Undergraduate student-mentor expectations [template](https://docs.google.com/document/d/1nikSfcmsgdU1-qy9QEFFfZBsQd_PImGM/edit?usp=sharing&ouid=110931049096349262175&rtpof=true&sd=true)

[Safe field work](https://esajournals.onlinelibrary.wiley.com/doi/epdf/10.1002/bes2.2031)

**Other mentoring and mentee resources for graduate and undergraduate students**

National Academies Press [The Science of Effective Mentorship in STEMM](https://www.nap.edu/resource/25568/interactive/index.html)

Center for Improvement of Mentored Experiences in Research [CIMER](https://cimerproject.org/)

National Research Mentoring Network: [NRMN](https://nrmnet.net/)

Many scientific societies have mentoring programs for students, such as:

Ecological Society of America [SEEDS](https://www.esa.org/seeds/)

Society of Freshwater Science [INSTARS](https://freshwater-science.org/awards-programs/instars-program)

Society for Advancement of Chicanos/Hispanics & Native Americans in Science [SACNAS](https://www.sacnas.org/)

Association of Women in Science [AWIS](http://www.awis.org/?mentoring)

**Readings and resources:**

Sample CVs in Appendix [A](https://drive.google.com/file/d/1pP6uE0cZQglcTZQJmvHOcnPRecicv-Q_/view?usp=sharing) and [B](https://drive.google.com/file/d/1pScNOD1YFv6_rutlX5v9mP8NqQ3d_3-v/view?usp=sharing) in [A field guide to grad school](https://catalog.lib.ncsu.edu/record/NCSU4960376) by J. Calarco

[Chapter 11](https://drive.google.com/file/d/1pNwQwuGoFo68GsLtR8brOS-7Xn0igm2D/view?usp=sharing) in [A field guide to grad school](https://catalog.lib.ncsu.edu/record/NCSU4960376) by J. Calarco

[Hiring criteria in biology departments](https://drive.google.com/file/d/1p_V1UElKzUNFbAWUGxGX7shOULhZp06q/view?usp=sharing) by Fleet et al.

[Job preparation advice](https://drive.google.com/file/d/1p_V1UElKzUNFbAWUGxGX7shOULhZp06q/view?usp=sharing) by Agrawal et al.

[The World is your Oyster: jobs outside academia](https://iaphs.org/the-world-is-your-oyster-advice-for-phd-students-considering-non-academic-jobs/) by Palermo et al.

[PhDs hold promise](https://drive.google.com/file/d/1pl2VUi-cuL8nN83fNdV96iVKZN46F9_F/view?usp=sharing)! By Woolston

Monitor your professional societies’ career resources and job boards (e.g., [ESA](https://www.esa.org/career-development/))

[Networking](https://www.science.org/content/article/how-network-effectively)

[Apply to a Building Future Faculty Program](https://docs.google.com/document/d/16ffZC-dwdpUrB491jmSjoIBj82ocleZEQOunRUH4uWo/edit)

**Last class!**

**No Final Exam**