

BIOL630 Critical Thinking

Instructor & coordinator: Dr. Phillip Barden

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Office: CKB 428B

Office Hours: Monday, Wednesday: 11:00-4:00pm; by appointment

Course Website: <http://canvas.njit.edu>

Course Schedule: Mon, Weds 10:00-11:20pm

Course Location: FMH 321

Course description: This course is designed to prepare graduate students for academic life. This includes 1) understanding current paradigms in scientific inquiry; 2) developing skills for effective written and oral scientific communication, and 3) learning how to provide and synthesize feedback via collaboration and criticism.

Learning objectives

Researchers in the biological sciences must understand and be able to effectively apply the scientific method, and they must also be able to clearly communicate their ideas and results. This course will involve heavy participation. At the end of the course, students will:

- Be able to assess and critique scientific literature.
- Develop scientific expertise through reading scientific literature.
- Discuss the scientific method and incorporate modern scientific paradigms into their thinking.
- Effectively communicate scientific concepts in writing and in-person.
- Provide feedback to colleagues in a constructive manner.

Prerequisites: None

Required Materials: None.

Class participation: Students are expected to attend every class meeting, participate in discussions, and provide feedback and constructive criticism.

Grading Policy

Participation (coming to each class and speaking)	25%
Written assignments	25%
Presentation assignments	25%
Annotated Bibliography	25%

Grading Scale	
A	90 – 100
B+	85 – 90
B	80 – 85
C+	75 – 80
C	70 – 75
D	60 – 70
F	0 – 60

Assignments: Starting the week of September 16, you will be expected to bring physical printouts of written assignments to each class. Each written assignment will be graded as full or no credit for the day; students who forget to bring their written assignments to class may email them to barden@njit.edu the same day for 50% credit. During the presentation and slide making portion of the course, which begins in mid-October, students will receive points for sharing slides or verbal summaries in class, these will also be graded as full or no credit for the day; if you do not have slides or verbal summaries ready during class you may email them to barden@njit.edu the same day for 50% credit.

In-person course format: This course will run face-to-face, meaning we will all meet during our scheduled class time Mon/Weds, 10:00am-11:20am in Faculty Memorial Hall 321.

Academic integrity: Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: [NJIT Academic Integrity Code](#).

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu

Canvas: We will be using Canvas for our class website (<http://canvas.njit.edu>). To use Canvas students must have an NJIT UCID. If you are matriculated at NJIT you should already have a UCID. If you are a Rutgers student you may already have one. You can check by following the directions here: <https://ist.njit.edu/ucid/>. If you do not have one you can request one at the same page or call the NJIT helpdesk for assistance (973 596 2900).

Generative AI: All text in assignments on slides should be the product of your own thinking and writing. Any assignments that are found to comprise generative AI text, either entirely or in part, will receive no credit. Moreover, this course will require in-class writing and

participation that will reveal disjunct quality, tone, and content that may be the result of reliance of generative AI.

Key Dates:

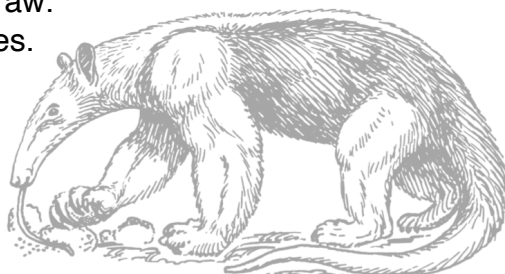
Sept. 3: First day of classes

Sept. 9: Last day to add/drop a class.

Sept. 16: Last day to withdraw with 90% refund

Nov. 11: Last day to withdraw.

Dec. 11: Last day of classes.



Week	Dates	Topic	Assignment kind
1	Weds, Sept 4	Introduction	Read the syllabus
2	Mon, Sept 9 Weds, Sept 11	Finding papers and compiling your bibliography. <i>Guest lecture on Monday by Dr. Santiago Meneses on finding literature. Wednesday class time for paper discovery.</i>	None
3	Mon, Sept 16 Weds, Sept 18	Modern scientific process	Bring two questions to class
4	Mon, Sept 23 Weds Sept 25	Scientific taste and aspirational science	Bring your favorite paper to class
5	Mon, Sept 30 Weds, Oct 2	Writing a sentence	Bring two sentences to class
6	Mon, Oct 7 Weds, Oct 9	Writing a paragraph	Bring one paragraph to class
7	Mon, Oct 14 Weds, Oct 16	Writing something long	Bring one page to class
8	Mon, Oct 21 Weds, Oct 23	Speaking about your work	Bring an elevator pitch to class
9	Mon, Oct 28 Weds, Oct 30	Slides and talks	Bring slide sketches to class

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10	Mon, Nov 4 Weds, Nov 6	Presenting one slide	Bring one slide to class
11	Mon, Nov 11 Weds, Nov 13	Giving a short talk	Bring multiple slides and outline to class
12	Mon, Nov 18 Weds, Nov 20	Giving a short talk	Bring multiple slides and outline to class
13	Mon, Nov 25	Becoming an expert	Bring concept map to class
14	Mon, Dec 2 Weds, Dec 4	Asking a question	Bring three questions to class
15	Mon, Dec 9 Weds, Dec 11	Your scientific research program	See Canvas

*Course schedule is tentative and subject to change. Please see Canvas and emails for updates.