BIOL 320 – Discovering Biological Research   Fall 2022

Instructor: Dr. Simon Garnier (garnier@njit.edu)

Class meets: Monday & Wednesday, 11:30am to 12:50pm, in CKB 314

Description: Success in the constantly evolving field of biology necessitates staying current in the scientific literature. This requires competency in skills such as analysis of primary sources, synthesis of information from multiple sources, and oral and written communication. This course focuses on these competencies. Students will develop the skills needed to read and analyze scientific literature, and to communicate science. Each semester the content theme of the course will change depending on the expertise of the faculty member(s) teaching the course. This course is a prerequisite for NJIT's Honors Capstone (Biol 495).

Learning expectations and assessment: This course is designed to introduce students to primary literature in the research sciences and enable them to find, read, and understand scholarly papers that relate to their interests and assignments. During the first half of the course, class meetings will consist of a few lectures that will cover essential aspects of primary literature organization and understanding, and of guided exercises and assignments aimed at practicing primary literature reading and summarizing. Students are expected to complete all assigned reading in advance of the class meeting.

The second half of the course will focus on producing a popular science podcast that will explain in layman's terms a recent scientific finding on a topic chosen by teams of 3–4 students and approved by the instructors. Each team will design and produce all the components of their respective popular science piece.

At the end of this course students should have the necessary skills to:
1) Read, analyze, and interpret scientific data.
2) Give an effective presentation of a scientific result or concept.
3) Communicate scientific facts through audio, video and/or written media.
4) Find and evaluate scientific literature relevant to their interests and needs.

This course will fulfill the following NJIT Institutional Learning Goals:
1. Research-based Inquiry: Students employ investigative methods
2. Collaboration: Students work effectively in teams to engage multidisciplinary perspectives
3. Engagement: Students are active and committed learners

It will also fulfill the following Program Learning Goals in Biology:
1. Analyze and interpret in writing scientific information gathered through laboratory, field, and library research.
2. Speak effectively about scientific topics, issues, and problems in formal and informal contexts.
3. Interact with others in a skilled, cooperative fashion to discuss issues and solve problems.

Finally, this course will improve the following NJIT Core Competencies of the Students:
1. Writing, Reading, and Critical Thinking
2. Information Literacy

Planned course outline:

Week 1   Introduction, team formation, topic selection + assignment (due Wed, Sep 8).

Week 2	Scientific process primer + assignment (due Mon, Sep 13).
Week 3	- Background research, scientific literature + assignment (due Mon, Sep 20).
	- Science communication dos and don'ts + assignment (due Wed, Sep 22).
Week 4-5	Writing project (due Sun, Sep 26 AND Mon, Oct 4) + critique project (due Wed, Sep 29).
Week 6	- Conducting a scientific interview, scriptwriting + assignment (due Mon, Oct 11).
	- Tools and tricks for audio recording and editing.
Week 7-13	Final project work + weekly project updates + script project (due Mon, Nov 22).
Week 14	Final collective review + final project corrections.
Week 15	Final project presentation.

Final project is due Monday, December 12. Final presentation will take place on Wednesday, December 14.

Office hours: Thursdays from 2pm to 3pm, or by email appointment.

Course prerequisites: Hum 102, R120:201/202, and BIOL 205/206.
Required texts: None.
Optional texts: "Reading Primary Literature: A practical guide to evaluating research articles in biology" by Christopher M. Gillen - ISBN-13: 978-08053-4599-5 ISBN-10: 0-8053-4599-X

Class website: Via NJIT Canvas.

Grading policy:
- Individual "assignments" will be graded PASS/FAIL whereas later more involved "projects" will be graded on a point system. All assignments and projects will be indicated whether they are individual or group submissions.
- All project grades include active attendance and participation in the drafting, presenting, and feedback/peer-review process.
- The final project will count toward the remaining third of the final grade. This includes participation in the project discussions, quality of the final project and presentation.
- I will add 5 points to your grand total if you send me an email before the first class to confirm that you have read this document.

Grading point breakdown:			Grading Scale:	
Assignments (6), all are pass/fail	10 x 6, 60 total		A	88-100%
Writing project (individual)	45 points		B+	81-87%
Critique project (individual)	25 points		B	74-80%
Script Project (group)	70 points		C+	67-73%
Final project (group)	100 points		C	60-66%
TOTAL	**300 points**		F	0-59%

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: http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf

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.