

Training in Team Science
IB 299-C, Spring 2020
Tuesdays 4:00 – 5:00 PM
Carl R. Woese Institute for Genomic Biology Room 612

Course Instructor: Dr. Gene Robinson, email: generobi@illinois.edu

Office hours: by appointment only (email Adrienne Gulley, amgulley@illinois.edu)

Prerequisites: Open only to students currently enrolled in IB390 or IB490 with a faculty member who has an appointment at the IGB.

Credit hours: 1 hour

Course Description: The Carl R. Woese Institute for Genomic Biology (IGB) is partnering with the School of Integrative Biology to offer a course to enhance research skills, especially for multidisciplinary team science. Team science is unique in academic labs but common in industry. Students will build upon their IB390 or IB490 research experiences to create a foundation in genomics, scientific collaboration, research etiquette and scientific communication and will leave the course better prepared for research-related employment. Open only to students currently enrolled in IB390 or IB490 with a faculty member who has an appointment at the IGB.

Student Learning Objectives: This course provides an overview of the multidisciplinary team-based research taking place at the IGB. Students will learn how to apply research techniques and other skills they have learned during their participation in IB390 or IB490 to future potential careers in biosciences. The specific learning outcomes include:

- 1) Explore multidisciplinary team-based science.
- 2) Learn how to identify and articulate grand challenges in science.
- 3) Become proficient in different types of science communication to succeed in a science-related career.

Course Structure: The course is intended to develop and enhance your universal research-related job skills including communications, writing, research presentations, professionalism and leadership while presenting topics related to many scientific fields. Each class will be 1 hour with 30 minutes dedicated to a professional development skill and 30 minutes dedicated to a specific research topic. Each session will be taught by a different expert in the two topics. Two of the lectures will focus on peer review in which students will peer edit research proposals and listen to each classmate present their research pitch. During these class sessions, a research topic will not be presented.

Course Grading:

This course will be graded S/U. To receive an S you must receive at least 70 of the possible 100 points. Your grade will be based on your attendance, participation in class, and your written assignments.

Assignment	Points
Attendance	10
Participation	10
Research abstract	20
Research proposal	20
Research project pitch	20
Research poster presentation	20
Total	100

Written assignments:

Research abstract – Introductory abstract about the research project you will be performing for your individual research enrolled in IB 390 or IB 490. Include a short research background and aims (300 words, 20 points).

Research proposal – a research proposal written in the style of the National Science Foundation, a key government science funding agency, based on the research you are performing in lab. Should be a continuation of the research abstract and aims (2 pages double spaced, 20 points).

Research project pitch – 1-minute oral pitch in class on the research project you have been working on throughout the semester (20 points).

Research poster presentation – A full-sized poster with background information and detailed protocols and data from the semester long independent research you conducted. The posters will be presented to faculty, postdoc and graduate student mentors as well as other students within the course. A template for this will be available to guide you (20 points).

Late assignments will not be accepted.

Attendance: To pass, you are required to attend at least twelve class sessions and present at the IGB Research Symposium. If you need to be excused for any reason please email Adrienne Gulley, amgulley@illinois.edu. You will need prior approval or documentation to make up any missed classes or assignments.

Academic Integrity: Student infractions of academic integrity will not be tolerated. This class will follow the guidelines of the Student Code. Students are responsible for following the guidelines address in Part 4, for more information visit:

<https://studentcode.illinois.edu/docs/19.001.FullCodeInside.vf.pdf>

Special Accommodations: If you required special accommodations, please contact Adrienne Gulley, amgulley@illinois.edu at soon as possible with requests.

Course Schedule:

Each week students will meet for 1 hour with Professor Gene Robinson, an IGB Postdoctoral Fellow, or and IGB Outreach staff member. Classes will meet on Tuesdays at 4PM in IGB conference room 612 on the concourse level. **All deadlines are at 4:59 PM Central Time.

Date	Professional Development (30 minutes)	Research Development (25 minutes)	Instructor	Assignment Due
Jan 21	An Introduction to multidisciplinary research at the IGB	Overview of the IGB research themes	Dr. Gene Robinson	
Jan 28	Establishing research goals	Biocomplexity	Dr. Mohea Couturier	
Feb 4	Documenting your research and analyzing data	Center for Advanced Bioenergy and Bioproducts Innovation	Dr. Diana Ranoa	Research abstract
Feb 11	Searching and Reading Scientific Literature	Omics Nanotechnology for Cancer Precision Medicine	Dr. Taylor Canady	
Feb 18	Writing a Research Proposal – Part 1	Gene Networks in Neural and Developmental Plasticity	Dr. Claudia Lutz	
Feb 25	Time management with research and course work	Mining Microbial Genomics	Dr. David Krist	
Mar 3	Writing a Research Proposal – Peer editing of the research proposal		Dr. Courtney Fenlon	Research proposal - draft

Mar 10	Science career exploration		Panel	Research proposal - final
Mar 17	Resume Workshop	Anticancer Discovery from Pets to People	Dr. Steve Burgess	
Mar 31	Effective Scientific Presentations – giving oral presentations	Infection Genomics for One Health	Dr. Rebecca Batstone	
Apr 7	Tips and Tricks for graduate school, Industry and medical school	Regenerative Biology and Tissue Engineering	Dr. Dan Urban	
Apr 14	Effective Scientific Presentations – the poster	Genomic Ecology for Global Change	Dr. Justin McGrath	
Apr 21	The Genomic Revolution – Coming to a Neighborhood Near You		Dr. Gene Robinson	
Apr 28	Effective Scientific Presentations – in class research project pitch practice		Dr. Courtney Fenlon	Research Project Pitch
May 7	IGB Fellows Research Symposium Presentation		Dr. Courtney Fenlon and IGB Fellows	Individual research poster presentation