Biochemistry Colloquium
Chem 688

Primary Instructor: Kelly Drew, 474-7190, kdrew@alaska.edu
Department of Chemistry and Biochemistry
Murie 218

Office Hours: please contact instructor via email or phone

Meeting Time: Wednesday, 11:45 pm – 12:45 pm, Murie 230

Text: The Grant Application Writer’s Workbook
Other reading material will be distributed during course

Course Description:
This 1 credit course provides a set of practical skills to succeed as a professional scientist in the increasingly competitive environment in higher education, academia, or private industry. The colloquium will focus on Fundamentals of Problem Solving

- Defining significant of problem
- Communicating innovation – Departure from status quo
- Committing to a theoretical model
- Identifying the gap in knowledge
- Understanding the fundamental thoughts underlying the scientific method
- Identifying features that contribute to rigor and reproducibility of research
- Applying features of rigor and reproducibility to experimental design
- Knowledge of good laboratory practice
- Critical skills in support of experimental design – data management, logistics, note taking, SOP
- Research ethics –transparency in reporting

Course Goals:

- Be able to graphically represent a model of a system or process and to identify gaps in knowledge that limit confidence in the model
- Be able to state a purpose for each experiment. State the hypothesis for the experiment and explain how your experimental design tests this hypothesis.
- Understand components of good laboratory practice and how to address rigor and reproducibility of prior research and to enhance rigor and reproducibility of your own research.

Learning Outcomes: Spring 2022
• Develop a working model, generate hypotheses from the model and design experiments to test these hypotheses.
• Prepare a research proposal and know how to communicate the significance, innovation, approach and feasibility of the proposed work.
• Prepare an NIH biosketch and develop a vision for growing your biosketch
• Discuss rigor and reproducibility of published research and of proposed research.

Instructional Methods:
The course is composed of group discussions (approx. 50%), and individual writing assignments.
Group discussions are graded from attendance and participation. Participation includes voicing opinions and making revisions in response to group feedback. Writing assignments (approx 50%) are graded on a nominal scale of 0 or 1. The score is 1 if the writing assignment is available as scheduled for discussion and 0 if it is not available for discussion. This course is writing intensive and culminates in a research proposal.

Grading:
Students will be evaluated on the basis of their participation. Grades are A (90-100%), B (80-90%), C (70-80%), D (60-70%), F (<60%)

Course Policies:
Attendance: Graduate student attendance is expected. Undergraduate student attendance is highly encouraged. Active student participation is expected.
Presentations: Students will receive adequate preparation time for all assignments. Content and organization of topics are the primary concern, however presentation and discussion are also important for optimal outcomes.

Ethical Considerations:
The Chemistry Department’s policy of cheating is as follows: “any student caught cheating will be assigned a course grade of F. The student’s academic advisor will be notified of this failing grade and the student will not be allowed to drop the course”.

Plagiarism Policy:
Plagiarism is defined as the use of “other” intellectual property without proper reference to the original author. Intellectual property includes all electronic, spoken or print media thus any information taken of the web is included under this statement. Students are expected to cite all sources used in oral and written presentations. Cases of plagiarism will be taken seriously with a grade 0 for the particular assignment. Severe cases may be referred to the Department Chair or Dean or class failing considered.

Services –Support, Disabilities:
Support services will be provided by the University of Alaska Library system, online resources and the instructor. Additional services are available through Student Support Services (http://www.uaf.edu/sssp/) at UAF. We will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide accommodations for students with disabilities.

Course materials
Grant writing book (posted on Blackboard)

The NIH biosketch and research proposals
https://grants.nih.gov/grants/forms/biosketch.htm
Also see,
https://nexus.od.nih.gov/all/2016/01/28/scientific-premise-in-nih-grant-applications/
https://grants.nih.gov/reproducibility/index.htm
https://www.niaid.nih.gov/grants-contracts/write-research-plan

University of Alaska Fairbanks, Good Laboratory Practice (GLP) Stage 1 – GLP
https://www.citiprogram.org/