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*
http://www.grantcentral.com/workbooks/national-institutes-of-health/
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://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/write-your-application.htm

https://grants.nih.gov/grants/how-to-apply-application-guide/forms-d/research-forms-d.pdf

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/