Graduate Skill Development for Life Scientists, MCB 529

Credit Hours: 1 credit hour
Class Time: Monday 3:30 – 4:50 pm, Burrill Hall 7
Office Hours: Wednesday 3:00 – 4:00 pm, CLSL C622

Instructor Information: Anna Marie Sokac, Ph.D., Associate Professor, CDB
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Suggested reading: The Art of Scientific Storytelling, by Rafael E. Luna, Ph.D. (2013) Amado Int. ISBN-10: 0615821995.

Additional course materials will be supplied by the instructor at this Box link: https://uofi.box.com/s/zhcltx6brl62uzpar7qbnvxk0tm801cx.

This course is intended for graduate students working towards a Ph.D. in the life sciences.

Course Description & Goal

Students will build skills to (1) maximize mentoring relationships; (2) communicate research findings; and (3) proactively advance professional development. Emphasis will be placed on conducting original research with rigor, while also developing transferrable professional skills, including working in teams, problem-solving and communicating effectively.

Competencies developed in this course address recommendations of NASEM's 2018 and 2019 Consensus Reports: Graduate STEM Education for the 21st Century & The Science of Effective Mentoring in STEMM.

Student Learning Outcomes

At the end of the course students will be able to:

- Design and deliver an effective and logically coherent oral presentation of their research
- Steward responsible research efforts with consideration of societal impacts
- Establish and maintain productive working relationships, including "mentoring-up" with current research advisors
- Communicate effectively in intra- and interdisciplinary teams
- Communicate to bridge personal and cultural differences
- Build self-efficacy and coping-skills to promote professional success
- Proactively explore and pursue career opportunities
- Design and implement an Individual Development Plan (IDP)

Course Calendar

Semester Week – Session Date	Topic(s)	In-Class Activities*
Week 1 – Jan 27	Course objectives & rationale; Preparation for group-based problem solving	• Constructive/Destructive Group Behaviors(A) • Setting Ground Rules for the Group(A) • Introduction to the Framing Funnel(I)
Week 2 – Feb 3	Thinking logically & communicating like a scientist	• Framing Funnel Group-Share on Wu *et al*., 2013(A) • Map Your Research to the Framing Funnel(ST)
Week 3 – Feb 10	Designing your talk & slides; Seeking & incorporating feedback	• Designing Effective Scientific Presentations(I) • Responding to Feedback(CS) • Using Rubrics for Evaluation(A)
Week 4 – Feb 17	Slide feedback	• Pair-Share Slides/Get & Give Feedback(ST)
Week 5 – Feb 24	Practice talks & feedback	• Pair-Share Practice Talks/ Get & Give Feedback(ST)
Week 6 – March 3	Final oral presentations *slide deck due by 3:00 pm*	
Week 7 – March 10	Presentation postmortem	• Reflection on presentation process(A) • Turning your presentation into a proposal or paper(I) • Picking good problems(A)
Week 8 – March 24	Research rigor & responsibility	• Responsible Conduct of Research(I) • Notebook Page Exchange-Can You Decipher This?(A) Keeping the Data Complete(CS)

Week 9 – March 31	Introduction to "Mentoring Up"; Establishing & maintaining effective communications	• What Does Mentoring Mean?(A) • Busy Mentor(CS) • Identifying Different Communication Styles(A) • Say It a Different Way (A)
Week 10 – April 7	Aligning expectations in working relationships	• Stuck(CS) • Symptoms of Misaligned Expectations(A) • Strategies for "Mentoring Up"/ Developing SMART Goals for Your Mentoring Relationships(A)
Week 11 – April 14	Challenges facing grad students and their research teams	• Defining Challenges(I) • Recognizing Challenges in Our Workspaces(A) • Coping and Mitigation Strategies(A)
Week 12 – April 21	Building research self-efficacy & achieving independence	• Self-Efficacy: What Is It, How Do You Build It?(I) • Significant Research Moment(A) • Pathway to Independence(A)
Week 13 – April 28	Pursuing professional development	• Individual Development Plans(I) • Next Step in Your Career(A) • Networking Your Way to the Job You Want(A)
Week 14 – May 5	Time management; Course reflection	• Work-Life Integration Alignment(A) • Balancing Competing Demands(CS) • Managing Time Using the Urgent Versus Important Grid(I) • Reflection and Action Items(A)

**(I) Instruction; (A) Activity; (CS) Case Study; (ST) Synchronous Task*

Instructor's Expectations for Class Participation

This course is designed to promote dialogue and group-based problem-solving and, therefore, demands student participation in all class discussions and activities. The unique perspectives that you share by being an active participant will bring value and depth to our discussions, allowing us to generate impactful outcomes together. Throughout the course, you will be asked to engage in earnest self-reflection and proactive planning to advance your professional development. In all our interactions, we will be thoughtful, respectful, and professional. If we deviate from these expectations, then we will work to find an effective path forward.

Grading & Assessment of Course Performance (125 points total)

- Student participation in class discussions and preparedness for class discussions (assumes on-time attendance): ***28 points***
- Quality and completeness of pre-class assignments: ***17 points***
- Oral presentation: ***60 points*** broken down as follows.
    - Preparation: (30 points)
        - Logic mapping
        - Slide development
        - Practice talk
    - Feedback provided to a partner: (10 points)
    - Final presentation (20 points)
        - Quality of slides
        - Oral presentation
- IDP preparation: ***20 points***

Attendance is required. Only pre-discussed absences will be excused, and a make-up activity will be assigned. The make-up activity must be completed to receive full participation credit for that class day. Unexcused absences will result in loss of all participation credit for the missed class.

Pre-class assignments and IDP. Full credit will be awarded based on timely submission of the assignment and a good-faith effort to engage in the activity. Many assignments require self-reflection, which can be challenging. If you are struggling to complete an assignment, then please reach out in advance so that we can discuss a plan.

Presentation rubrics. Detailed rubrics will be provided and discussed on Week 3 for evaluation of oral presentations. Briefly, evaluation will be based on implementation of effective slide design and development of a logical narrative to communicate results and/or planned experiments.

Feedback provided to a partner. During the process of generating your own oral presentation, you will be asked to provide feedback to other students on their efforts. Feedback is expected to be detailed, specific and constructive.

Final grades: A $\geq$90%, B $\geq$80%, C $\geq$70%, D$\geq$60%, F$\leq$59%

Statement on Academic Integrity

According to the Student Code, 'It is the responsibility of each student to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions.' Please know that it is the instructor's responsibility to ensure that the academic integrity policy of the University is upheld. The policy can be found at: https://studentcode.illinois.edu/article1/part4/1-402.

Statement on Disability Accommodations

To ensure that disability-related concerns are properly addressed from the course onset, students with disabilities who require assistance to participate in any aspect of this class should notify the instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES, students may visit 1207 S. Oak St., Champaign, call 217-333-1970 (V/TTY), or email a message to disability@illinois.edu.