BIO 4990 – Introduction to Research Practice
BIO 5060 – Special Topics - Introduction to Research Practice
BIO 6890 – Introduction to Research Practice, Honors
NEU 4990 – Introduction to Research Practice
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Winter 2021

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➢ Class meets: 10:30 to 11:20 – remote via Zoom
➢ Office hours: by appointment
➢ Class Web site: http://canvas.wayne.edu
   All course materials available through Canvas. Please check this site often.
➢ 1 credit (Lecture, discussion, invited speakers and student presentations)

Overview: This course is an introduction to laboratory safety, research practice and
                  scientific integrity for undergraduate students currently engaged or interested in
                  independent research. It is a co-requisite for students enrolled in BIO/NEU 4991-
                  4, BIO 6891-4, or NEU 6992-4 for the first time.

Objectives: This course is structured to provide instruction in basic laboratory safety and
                  accepted standards for research conduct. It will provide professional
                  development and networking opportunities for students interested in careers in
                  research and the biomedical sciences. Instruction is provided in the form of
                  reading assignments, discussions, lectures and case studies.

Learning Outcomes: By taking this course, students will be able to
  • State the general rules for working safely in a laboratory environment
  • Describe the importance of record keeping in ensuring high standards of rigor and
    reproducibility in experimentation
  • Identify unethical behavior in science and formulate appropriate responses to unethical
    behavior
  • Describe the impacts, both good and bad, of scientific research on society
  • Understand different training and career paths that can result from a degree in Biological
    or Neurological science
  • Describe the key principles for communicating scientific information to both specialist
    and non-specialist audiences

Course reading material:
  • Selected content from "On Being a Scientist: A Guide to Responsible Conduct in
    Research: Third Edition", Committee on Science, Engineering, and Public Policy,
    National Academies of Sciences, Engineering and Medicine (NASEM). The National
    Academies Press, 2009.
    (available free at http://www.nap.edu/openbook.php?record_id=12192&page=1)
  • Selected content available from Visionlearning.org
    https://www.visionlearning.com/en/library/Process-of-Science/49
  • Additional assignments will be posted to Canvas

Grades will be based on the following:

- *Discussion participation:* Attendance and participation is mandatory. Students must read the assigned readings before class and come prepared to discuss the material. Discussion points will be determined in a number of ways including participation in the chat, polls, on the MS Teams worksheets and peer review of research presentations. Additionally, over the course of the semester, each student will be assigned to lead and moderate break out room discussions and serve as reporter the main group. **No more than 2 classes can be missed for any reason**. Students who arrive late or leave early may lose participation points at the discretion of the instructor.
- *Reflections:* Students will submit a brief reflection statement (two to three paragraphs, 250-500 words) on what they learned within a given session. These statements should be a narrative version of the notes taken during that session and should be submitted in legible English (e.g. coherent sentence structure, punctuation, spelling, etc.) directly into Canvas. Each Reflection is worth 10 points and will be graded in an all-or-none fashion. There are 10 sessions with opportunities for Reflections. A total of 80 Reflection points will count towards your final grade.
- *CITI (4990, 6890, 6990 only) and safety training:* To pass this course CITI training must be completed within 2 weeks of the start of the course. Additionally all students must attend the laboratory safety session on Jan 29. Failure to complete the CITI training (4990, 6890, 6990) or to attend the laboratory safety session will result in failure in the course. Instructions from NEU web site: https://clas.wayne.edu/neuroscience/research/citi
- *Essay on career plan:* Students will read the article "So the Pandemic Has Upended Your Education: What's Next?" by Peter Gilligan and write an essay about their career plans.
- *Research presentation:* Students will learn techniques for talking about science to other scientists and the public. They will put these into practice by presenting a five minute overview of the research in which they are participating (4990, 6890, 6990) or a summary of their favorite Nobel prize winning research (5060) to the class.
- *Thesis outline (6890 & 6990 only)*: At least two weeks prior to the last day of class, honors students will submit a thesis outline to their advisor for comment and correction. The outline should be at least ½ page and must A) explain how the proposed study will advance the field, B) describe the experimental strategy, and C) describe how findings, both positive and negative, will be interpreted. At least one week prior to the last day of class corrected thesis outlines will be forwarded from the research advisor to the course instructor with a grade.

4990

Discussion participation	3 points/session (10/12)	30 points (17.6%)
Reflections	10 points/assignment (8/10)	80 points (47%)
Essay on career plans	20 points	20 points (12%)
Completion of CITI training	20 points	20 points (12%)
Research presentation	20 points	20 points (12%)
Total points possible		170

5060

Discussion participation	3 points/session (10/12)	30 points (20%)
Reflections	10 points/assignment (8/10)	80 points (53.3%)
Essay on career plans	20 points	20 points (13.3%)
Research presentation	20 points	20 points (13.3%)
Total points possible		150

6890

Discussion participation	3 points/session (10/12)	30 points (13.6%)
Reflections	10 points/assignment (8/10)	80 points (36.3%)
Completion of CITI training	20 points	20 points (9%)
Essay on career plans	20 points	20 points (9%)
Research presentation	20 points	20 points (9%)
Thesis outline	50 points	50 points (22.7%)
Total points possible		220

Grading scale:

90 - 100	A
80 - < 90	B
70 - < 80	C
65 - < 70	D
< 65	F

Grading Policies:
- Late policy. All assignments have specific due dates. We have assigned dates to keep you on track with the material. Because we understand that this is a challenging time, we will allow a grace period of two days for any written assignment, no questions asked. If at the end of this grace period, you are still have difficulty completing the assignment, then you must schedule a meeting with either Dr. Pile or Fischer to set up a schedule for completion.
- Anyone caught cheating on an assignment will automatically receive a failing grade for the class and procedures for expulsion of the guilty individual from Wayne State University will be undertaken. Plagiarism is a form of cheating and therefore subject to the same penalty. Please refer to http://www.plagiarism.org for information on what constitutes plagiarism and how to avoid it.
- Your written work will be submitted to Unicheck for an evaluation of your ideas and proper use and attribution of sources. As part of this process, you will be required to submit electronic copies of your written work. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Unicheck's restricted access database, solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all. Because our goal is to help you learn how to not plagiarize, information on how to avoid plagiarism will be posted on Canvas.
- Conflicts regarding the grading of assignments and discussion must be resolved within one week of the return date. You will need to submit a written statement explaining the concern.

Course Participation: WSU has a policy requiring student participation in courses. A participation verification system is in place. You must attend at least one lecture during the first two weeks of class to fulfill the attendance/participation requirement. If you do not attend, the Registrar will administratively withdraw the student from the relevant class(es) and Student Financial Aid will adjust financial aid accordingly. For additional information, please refer to http://reg.wayne.edu/gotoclass.php

General Policy: 1) January 25 is the last day to drop the course and retrieve your tuition.
2) January 25 is the last day to drop the course without the instructor's signature. Does not appear on record.
3) January 26 to March 28, the instructor's signature is required to withdraw from course. One of the following grades will be assigned:

WP-withdrawal with a passing grade earned to date
WF-withdrawal with a failing grade earned to date
WN-withdrawal never attended, or no graded work to date
The grade assigned will be based on the points accumulated to date. Grades will be given using a straight scale, no curve is applied to grades of students withdrawing from the course.

4) <u>March 28</u> is the last day to withdraw from the course. Students are not permitted to withdraw at the end of the semester and no exceptions to this policy will be made.

5) If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TDD only). Once you have your accommodations in place, Dr. Pile or Fischer will be glad to meet with you over video chat to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University. Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible.

6) In the event of a University closure, the schedule will be adjusted. University closures will be publicized through:
   - the University Newsline (313) 577-5345*
   - WSU Homepage (www.wayne.edu)*
   - WSU Pipeline (www.pipeline.wayne.edu)*
   - WDET-FM (Public Radio 101.9)
   - by other local radio and television stations
   * Note: The information on closures and class cancellations is likely to be found at these locations before it is broadcast by local radio and television stations.

7) For any and all issues not covered in this syllabus, refer to the "Student Due Process Policy".

Academic Integrity and Student Code of Conduct:
This is a remote course, one in which discussions occur and refection essays are submitted online. We ask you commit to pursue success in this course according to the Wayne State University student code of conduct: https://bog.wayne.edu/code/2-31-02 We request that you participate with civility and respect during the online discussions, provide constructive criticism for peer review and submit materials that you have completed without unauthorized aid. You will also be asked to comply with University privacy and confidentially rules. More information on this will be provided on Canvas.

COVID-19 Compliance:
All students are expected to familiarize themselves with mandatory campus health and safety guidelines – including practicing social distancing and wearing a face covering - by completing the Warrior Safe Training modules in Canvas. University policy requires students to complete a campus daily health screener beginning 48 hours before first coming to campus.

Introduction to Research Practice in the time of COVID-19

Overview Due to the pandemic, the course will be held remotely, and is considered a synchronous class. What does this mean? The class will meet at the regularly scheduled time and it is required that students attend and participate via Zoom. We will use break-out rooms to facilitate small group discussions. Slides with course materials and reading assignments will be posted in advance. You must be present online and an active participant during the discussion to earn the participation points. The Zoom meetings will be recorded.

Technology Because the course will be held remotely over Zoom, the following technology is required:
- Desktop or laptop computer w/ camera, microphone, speakers*. Note, you will not be required to turn on your video for all class meetings, but it will be required a few times during the semester.*
- Reliable internet access
- Web browser (e.g., Firefox, Chrome, Safari)
- Canvas, Zoom, MS Teams app (free to students)
  - For assistance with Canvas, see C&IT's Student Intro to Canvas Course and Comprehensive Student Guide https://tech.wayne.edu/kb/academic-services/canvas/500217
  - For assistance with any of these technology issues, contact C&IT Helpdesk M-F from 7:30 am to 8 pm at 313-577-4357 or helpdesk@wayne.edu
  - For assistance with Zoom, refer to this site: https://tech.wayne.edu/kb/academic-services/zoom
  - For assistance with MS Teams, refer to this site: https://tech.wayne.edu/kb/academic-services/canvas/500222

Students who lack adequate hardware or reliable internet access should email the Dean of Students at doso@wayne.edu or call 313-577-1010 for assistance. Students on campus also have access to equipment through University Libraries. For more information, see Equipment Checkout Policy and Procedures. The University Libraries also have computer labs in several campus locations.

Support services We understand that remote learning is new to many of you. We also understand that this current time is one of challenge and, for some, heightened anxiety. WSU has developed many student support services to help you succeed in this new environment:

- ***Learn Anywhere*** site that provides resources and tips for taking online courses
  https://success.wayne.edu/learnanywhere
- ***Academic Success Center*** offers resources for improving study skills, building study groups, and similar activities
  https://success.wayne.edu/
- ***Study Skills Academy*** offers free study skills counseling and other services
  https://success.wayne.edu/study-skills
- ***Technology support and services* tech.wayne.edu/coronavirus/student**
- ***Managing anxiety*** https://socialwork.wayne.edu/announcement/77956
- ***Counseling and Psychological Services* https://caps.wayne.edu/**