

UNIV 1820: Exploring STEM Research 101

for STEM majors

Course Policies

Instructor information:

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Course description: By the conclusion of this course, students studying science (biology, chemistry, psychology (in pursuit of BS or BA)), technology, engineering, and mathematics (STEM) will explore hands-on research opportunities at UCONN; learn about graduate school and STEM career options; will improve their fluency writing academic research-relevant assignments such as reading, writing, and research project design; and enhance their professional communication skills for real-world interactions with professors and fellowship/ scholarship interview scenarios.

Course Objectives:

At the culmination of this course, students will be able to:

Please note: LO is the abbreviation for learning outcome as described in the UNIV 1820 guidelines

LO1: Students will work with an expert in a field of intellectual interest.

LO2: Students will engage actively in the academic life of the university, in or out of the classroom.

LO3: Students will conduct directed research and/or applied work.

- **Course Objective 1: Collaborate with faculty and graduate students about research in the STEM disciplines (LO1, LO2).**
- **Course Objective 2: Describe research/ enrichment opportunities at the undergraduate level to increase acceptance in to graduate school programs (LO2).**
- **Course Objective 3: Explain the steps involved in applying to graduate school (LO3).**
 - Sub-objective (a): Describe the importance of following a prescribed timeline for the application process (**LO3**).

- Sub-objective (b): Evaluate which professors would be able to write STRONG letters of recommendation (LO3).
- **Course Objective 4: Debate scientific literature by thinking and writing more critically about STEM research topics (LO3)**
 - Sub-objective: Write a science research review paper on a STEM topic relevant to major and/ or faculty seminar (LO3).
- **Course Objective 5: Write a personal statement relevant for STEM-related fellowships and undergraduate opportunities at UCONN (LO2, LO3).**

Reading materials: reading materials will be provided

- Week 6 and 9: Writing center guides:
 - Writing a literature review: http://www.writingcenter.uconn.edu/pdf/Writing_a_Psychology_Literature_Review.pdf
 - Citation style guides: <http://psychology.vanguard.edu/faculty/douglas-degelman/apa-style/> and http://owl.english.purdue.edu/media/pdf/20110928111055_949.pdf
- Week 6: primary literature vs. review article
 - Review article: Noatynska, A., Gotta, M., and P. Meraldi. Mitotic spindle (DISorientation and DISease: Cause or consequence?. *J. Cell Biol.*; 2012. 199 (7): 1025 - 1035.
 - Primary literature article: Clijsters, L., Ogink, J., and R. Wolthuis. The spindle checkpoint, APC/C^{Cdc20}, and APC/C^{Cdh1} play distinct roles in connecting mitosis to S phase. *J. Cell Biol.*; 2013. 201 (7): 1013 – 1026.
- Week 7: Kluger, J (July 8, 2013). The Happiness of Pursuit. *TIME*. Retrieved from <http://www.time.com/time/magazine/article/0,9171,2146449,00.html>
- Week 10: Excerpts from *Graduate School and You: A Guide for Prospective Graduate Students*. Council of Graduate Schools, Washington, DC. 2010.
- Week 10: (January 29, 2013). A Guide for Potential Grad Students: Should You Go To Graduate School?. Retrieved from <http://www.petersons.com/graduate-schools/guide-students-graduate-school.aspx>

- Week 12: (2013) Graduate School – Letters of Recommendation. Retrieved from University of California at Berkeley Career Center webpage:
<https://career.berkeley.edu/grad/gradletter.stm>

HuskyCT:

- Assignments
- Reading materials
- Reminders
- Journal entry submissions
- E-mail
- Grade-keeper
- Anonymous discussion

Grading policy: please refer to the following rubric

Class Participation: Your comments and opinions will make this course more dynamic. Therefore, class participation is strongly encouraged each day we meet. In a majority of the class sessions, assignments will be contingent on your class participation and, therefore, attendance.

Academic integrity: Please review both of these websites:
http://www.community.uconn.edu/academic_integrity.html and
http://www.community.uconn.edu/student_code.html

Please be aware there will be consequences for your actions. When in doubt, ask!

Late assignment policy:

- 10% off the final score per day late
- Submission of assignment must be accompanied by a valid reason for tardiness

Absenteeism: If you miss a class, please be sure to inform me as soon as possible regarding your absence. It is your responsibility to submit assignments on time.

Snow and class cancellation policy: <http://alert.uconn.edu/> Please utilize this website as well as UConn official alerts to learn about weather-related class cancellations.

Important dates (spring semester, 2014):

- First day of classes: Tuesday, January 21
- Last day for add/ drop: Monday, February 3
- Spring break: Sunday - Saturday, March 16 - 22
- Last day of class: Friday, May 2
- Final exams: Monday – Sunday, May 5 – 10

Disability policy: [People with disabilities, policy statement \(UConn Policies and Procedures website\)](#)

Academic Support Services:

- Homer Babbidge Library: <http://www.lib.uconn.edu/>
- Writing Center (@ library): <http://learningcommons.uconn.edu/services/writingcenter.htm>
- Quantitative Learning (Q) Center (@ library): <http://qcenter.uconn.edu/>
- Tutoring: <http://uconnconnects.uconn.edu/tutor.htm>
- Center for Students with Disabilities: <http://www.csd.uconn.edu/>

Diversity statement: "It is understood that the definition of diversity is ever changing and is constantly being ratified. Diversity encompasses the presence and participation of people who differ by age, color, ethnicity, gender, national origin, race, religion, and sexual orientation; and includes those with disabilities and from various socio-economic backgrounds. It encompasses not only individuals and groups, but also thoughts and attitudes. The fabric of diversity at our University must be woven in thought and in experience, within a climate where diverse views are welcomed and respected and where there is a commonality that comes from working together to effect constructive change." *The Report of the Diversity Action Committee of the University of Connecticut Board of Trustees, April, 16, 2002*
<http://www.ode.uconn.edu/diversity/>

Syllabus

Week 1 Introduction to UNIV 1820

Homework: Journal – week 1 (**submitted on blackboard journal tool, weekly**)

Week 2 STEM faculty seminars (biology, chemistry)

Homework: Journal – week 2

Week 3 STEM faculty seminars (engineering, psychology)

Homework: Journal – week 3

Week 4 STEM faculty seminars (physics or another biology, mathematics)

Homework: Journal – week 4

Week 5 Lab tours/ experiment demos in faculty's labs

Homework: Journal – week 5

Week 6 Writing a literature review on STEM topic relevant to major

- library resources/ primary literature research vs. review articles/ peer-review process

Homework: Discover library resources; develop topic

Reading:

- (1) TIME magazine, The Happiness of Pursuit
- (2) Literature review and citation style guide information
- (3) Review and primary literature journal articles (as best as you can!)

Journal – week 6

Week 7 Critical/ skeptical thinking

Homework Critical/ skeptical thinking exercise

Journal – week 7

Week 8 Present exercise to class

Homework Journal – week 8

Week 9 Structure of literature review paper

Seminar session 1 – undergraduate research opportunities enrichment programs

Homework

Develop outline

Reading: Literature review and citation style guide information

Journal – week 9

Week 10 Peer-edit outlines

Homework Reading:

(1) p. 1 – 10, 15 – 17: deciding to go / choosing a graduate school, *Graduate School and You*

(2) Choosing Graduate School

Journal – week 10

Work on paper

Week 11 Preparing for the next stage in your academic journey

Homework Journal – week 11

Work on paper

Week 12 Personal statement

Letter-writing etiquette: How to ask professors for strong letters of recommendation; how to inquire about pursuing a research project

Homework Identify 3 STEM fellowships and/ or undergraduate opportunities

Write personal statement relevant for an opportunity

Reading: Letter of recommendation guide

Journal – week 12

Week 13 Peer-edit personal statements

Homework Journal – week 13

Work on paper and personal statement

Week 14 Due today: Literature review, personal statement

Seminar session 2 – undergraduate research opportunities enrichment programs

Handout for Success: Writing Assessment Scoring Sheet

LITERATURE REVIEW

60/ 100:

Introduction (1 paragraph):

- Clearly address the topic
- Concisely introduces the topic

Body/ Literature review (3 – 4 pages):

- Content is relevant to logic and flow
- Concise, yet thorough
- References are well-integrated
- References are pertinent to topic

Discussion (1 paragraph):

- Thoughtful analysis on multiple perspectives

References (5 – 8 references):

- Sufficient number of references
- Proper citation style for your field (APA, MLA, Chicago)
 - Refer to handout

25 / 100:

Critical analysis with multiple perspectives:

- Well-developed summaries of perspectives
- Multiple perspectives

15 / 100:

Mechanics:

- Proper grammar, spelling, and punctuation
- Proper sentence structure
- Font: Times New Roman, size 12
- Double-spaced
- 1 inch margins, all sides

PERSONAL STATEMENT

80 /100

Introduction (1 – 2 sentences):

- Name, major, academic status (i.e. sophomore)
- To what program are you applying?

Body:

- What is your motivation for applying? (1 – 3 sentences)
- What is YOUR story? (1 page)
 - *Be inspirational!*

Closing Remarks (1 paragraph):

- End with “oomph”
- Leave a lasting, positive impression

20 / 100:

Mechanics:

- Proper grammar, spelling, and punctuation
- Proper sentence structure
- Font: Times New Roman, size 12
- Double-spaced
- 1 inch margins, all sides

GRADE DETERMINATION

Class participation	Required
Literature Review	40%
Personal statement	40%
Journal - Weekly entries of experience	20%

Letter grades	Scale
A	100 - 95
A-	94 - 90
B+	89 - 88
B	87 - 85
B-	84 - 80
C+	79 - 78
C	77 - 75
C-	74 - 70
D+	69 - 68
D	67 - 65
D-	64 - 60
F	59 - 0