

“Epigenetics and Systems Biology”

Spring 2017 (Odd Years) – Course Syllabus

Biol 476/576 Undergraduate/Graduate Course (3 Credit)

SLN: (476) – 02346, (576) – 02347

Time - Tuesday and Thursday 10:35 am – 11:50 am

(Course Lectures on Blackboard/Panopto and Discussion Sessions on WSU Zoom for all campuses)

Room – CUE 418

Course Director - Michael Skinner, Abelson Hall 507, 335-1524, skinner@wsu.edu

Objective – The objective of the course is to learn the concept and critical role of systems to understand molecular, cell, development, physiology and evolutionary aspects of biology with a focus on the role of epigenetics in systems biology.

Schedule/Lecture Outline -

January 10 & 12	Week 1	Systems Biology (History/ Definitions/ Theory)
17 & 19	Week 2	Systems Biology (Networks & Emergence)
24 & 26	Week 3	Systems Biology (Components: DNA to Phenotype)
February 31 & 2	Week 4	Systems Biology (Genomics / Technology)
7 & 9	Week 5	Epigenetics (History / Molecular Processes)
14 & 16	Week 6	Epigenetics (Molecular Processes & Integration)
21 & 23	Week 7	Epigenetics (Genomics and Technology)
March 28 & 2	Week 8	Cell & Developmental Biology
7 & 9	Week 9	Epigenetics of Cell & Developmental Biology
13-17	Week 10	Spring Break
21 & 23	Week 11	Environmental Impact on Biology
28 & 30	Week 12	Environmental Epigenetics
April 4 & 6	Week 13	Disease Etiology
11 & 13	Week 14	Epigenetics & Disease Etiology
18 & 20	Week 15	Evolutionary Biology & Genetics
25 & 27	Week 16	Epigenetics & Evolutionary Biology
May 2 & 4	Week 17	Grant Review/ Study Section Meeting

Instruction Format -

- One 1.5 hour overview/lecture per week
- One 1.5 hour literature review/discussion session per week

Course Requirements -

1. Attendance
2. Participation in literature and discussion sessions

Graduate Students:

3. Grant proposal (6 page limit) due week of April 25
4. Student Grant Review session on week of May 2

Undergraduate Students:

3. Two exams

Grading and Evaluation-

- Both in class attendance (10%) and discussion participation (25%) and (graduate students) the proposal (65%) or (undergraduate students) exams (65%) will be factors considered.
- Grading scale A(90%), B(80%), C(70%), D(60%), F(<60%)

References and Textbook-

- Reading literature and references provided one week prior to session
- No required textbook (suggested reading provided from selected textbooks such as The Cell or Genes and review articles).

Conjoint Course Requirements –

1) Undergraduate –

- 1) Attendance (10%)
- 2) Participation and presentation in literature and discussion session (25%)
- 3) 2 exams (Midterm and Final), tested on lectured material (65%)

2) Graduate –

- 1) Attendance (10%)
- 2) Participation and presentation in literature and discussion session (25%)
- 3) Grant proposal (6 page limit) and review (65%)

3) Same lecture and literature discussion session for both 476 and 576 level students.

4) Same discussion session for both 476 and 576 level students.

The 576 & 476 students orally presenting specific literature (provided by instructor) overviews and leading discussion on that literature with questions provided by instructor to facilitate.

The 476 students participating in discussion and provided selected questions regarding the literature to answer during class and hand back after class for P/F grade of answers.

5) Students may receive credit in only one component of the conjoint listed course.

Catalog Entry –

SBS 476 level Epigenetics and Systems Biology 3 (Spring odd Years). Pre req Biol 301. Current literature based course on epigenetics and systems biology with topics in environmental epigenetics, disease etiology, and role epigenetics in evolutionary biology. Credit not granted for both 476 and 576.

SBS 576 level Epigenetics and Systems Biology 3 (Spring odd Years) Current literature based course on epigenetics and systems biology with topics in environmental epigenetics, disease etiology, and role epigenetics in evolutionary biology. Credit not granted for both 476 and 576.

Graduate Students

Grant Proposal

Outline:

- Title
- Abstract
- Specific Aims / Hypothesis
- Background
- Preliminary Results
- Experimental Design and Methods
- References

(6-10 pp. single spaced typed limit)

Key Points:

- Specific aims should be focused and concise and clarify hypothesis
- Be as concise and direct as possible
- Work significance of proposal into grant when appropriate
- Use only critical preliminary results

Additional Information:

- Propose short-range studies to address long-range goals
- Write grant for 3 to 4 year period to complete studies
- Feasibility of success is critical, ask right type of question
- Experimental design needs to address hypothesis

Score/Rating:

Factors involved: Type question addressed, organization of thoughts, preliminary results, feasibility, reasonable completion expectations, focus of aims and proposed studies.

Score		
1.0 - 1.5	Outstanding	Funded
1.5 - 2.0	Excellent	Probably Funded
2.0 - 2.5	Good	Accepted, but not Funded
2.5 - 3.0	Satisfactory	
3.0 - 3.5	Adequate	
3.5 - 4.0	Fair	
4.0 - 5.0	Acceptable	

Review:

NIH Study Section style review with all students/fellows participating in the review. Primary and secondary reviewers will be selected and all grants will be critiqued.

Note:

Welcome to use opportunity to prepare grants for student orals or fellowship applications.

Students with Disabilities

Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, please visit the Disability Resource Center (DRC). All accommodations MUST be approved through the DRC (Washington Building, Room 217). Please stop by or call 509-335-3417 to make an appointment with a disability specialist.

Plagiarism and Cheating

Academic integrity will be strongly enforced in this course. Any student caught cheating on any assignment will be given an F for the course and will be referred to the Office of Student Conduct.

I encourage you to work with classmates on assignments. However, each student must turn in original work. No copying will be accepted. Students who violate WSU's Policy on Academic Integrity will receive an F as a final grade in this course.

Academic integrity is the cornerstone of the university. Any student who attempts to gain an unfair advantage over other students by cheating, will fail the course. You must do your own work.

A Commitment to Campus Safety

Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors to the Pullman campus. As part of this commitment, the university has prepared this Campus Safety Plan, containing a listing of university policies, procedures, statistics and information relating to campus safety, emergency management and the health and welfare of the campus community. Principal administrative responsibility for campus safety and security lies with the Division of Business and Finance. The Division of Student Affairs, Equity and Diversity also has significant responsibilities in this area.

Many university units collaborate to address campus safety issues and needs through their programs. Together, these programs comprise the plan for maintaining a safe campus for all. Links to the web pages for each of these units can be found below.

<http://safetyplan.wsu.edu> <http://alert.wsu.edu> <http://oem.wsu.edu/emergencies>