Advanced Readings in Biology  
The University of Toledo  
Department of Biological Sciences, College of Natural Sciences and Mathematics  
BIOL8990-020, CRN: 15385  
2 credit hours

<table>
<thead>
<tr>
<th>Instructor:</th>
<th>Dr. Guofa Liu</th>
<th>Term:</th>
<th>Spring 2016</th>
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</thead>
<tbody>
<tr>
<td>Office Hours:</td>
<td>Monday 1-3pm or by appointment</td>
<td>Class Location:</td>
<td>WO 4268</td>
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<tr>
<td>Office Location:</td>
<td>WO4268B</td>
<td>Class Times:</td>
<td>MW, 9-11am</td>
</tr>
<tr>
<td>Office Phone:</td>
<td>419-530-2869</td>
<td>Course Website:</td>
<td><a href="https://blackboard.utdl.edu">https://blackboard.utdl.edu</a></td>
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<tr>
<td>Email:</td>
<td><a href="mailto:Guofa.liu@utoledo.edu">Guofa.liu@utoledo.edu</a></td>
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COURSE/CATALOG DESCRIPTION
Faculty directed readings or projects in a specific area of Biology-Developmental Neurobiology.

COURSE OVERVIEW
This is a literature review course that will cover new studies on developmental neurobiology with a focus on neuronal circuits in different model organisms and systems. The course will be divided two major parts. Before the spring break, we will focus on discussing the formation of neuronal circuits, including axon guidance, neuronal migration, neuronal polarity and dendritic arborization in developing nervous system. After the spring break, we will discuss modulation of neuronal circuits such as synapse plasticity and behavior.

Course Format
In the beginning of the course, the instructor will give an overview of the field and then present the first paper. Afterwards, each week students will present 1 or 2 papers following a brief introduction by the instructor. For the most part, students can choose papers from the attached literature list. However, at the end of the course, each student has to on his/her own pick one paper from a non-CNS (Cell, Nature, Science including their sister journals) journal that should represent thorough studies and have a significant impact on developmental neurobiology. There is a mandatory question/answer time following each presentation. Students will be required to write a short term paper on a topic related to axon guidance and neuronal migration. The instructor will provide a list of suggested topics within the first 3 weeks of the semester. The term paper should cover general background in designed topics and current progress in the specific research area. Use standard paper size (8 1/2” x 11”) with one inch margins (top, bottom, left, and right). The text should be in a standard, single-column, double-spaced format and no less than 1,000 words. The type size should be 12-pt Times New Roman.
Note: This course may be offered to students in MS program as BIOL6990. Students in the Ph.D. program who take the course as BIOL8990 and part of their graduate curriculum should consult with the instructor to allow additional tailoring or extra work to prepare them for their individual research interests.

**STUDENT LEARNING OUTCOMES**

Students can expect to benefit from the course in following ways:

1. To understand general principles of neuronal circuitry in different model organisms and systems
2. To keep up with latest progresses and knowledge in axon guidance and neuronal migration
3. To get familiar with conventional and cutting-edge technologies in developmental neurobiology field
4. To understand and interpret scientific data
5. To be able to write a review based on several primary articles
6. To be able to prepare, design and present scientific seminars
7. To gain more ideas on how to design and implement experiments in hypothesis- or question-driven research

**TEACHING STRATEGIES**

This course is designed to stimulate student learning through engagement and participation. A variety of learning strategies will be used including in-class discussions, group activities and presentations. Please be prepared when you come to class by completing any and all assigned readings. Coming to class prepared to participate will be critical to your success in the course since the class activities are a significant part of your grade in the course.

**PREREQUISITES AND COREQUISITES**

Prerequisite: Consent of Instructor.

**REQUIRED TEXTS AND ANCILLARY MATERIALS**

All the required material is provided by the instructor and will be uploaded in Blackboard before the class starts.

**TECHNOLOGY REQUIREMENTS**

A computer with Adobe Reader and Microsoft Power Point as well as access to Blackboard will be required in order to complete the course. Course materials including the syllabus, homework and other supplementary materials will be deposited on the course website hosted at UT BLACKBOARD (https://blackboard.utdl.edu). Announcements from the instructor and submissions of students’ works will also be through BLACKBOARD.

**UNIVERSITY POLICIES**

**Policy Statement on Non-Discrimination on the basis of Disability (ADA)**

The University is an equal opportunity educational institution. Please read The University’s Policy Statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance.
**Academic Accommodations**

The University of Toledo is committed to providing equal access to education for all students. If you have a documented disability or you believe you have a disability and would like information regarding academic accommodations/adjustments in this course please contact the [Student Disability Services Office](#).

**ACADEMIC POLICIES**

**Academic Policies for Graduate Students**

As a student in this course and enrolled at the University of Toledo you should be familiar with the policies that govern the institution’s academic processes, for example, Academic Dishonesty, Enrollment Status, and Grades and Grading. Please read [Graduate Academic Policies](#).

**Missed Class Policy**

Students are expected to attend every class meeting of courses in which they are registered. Please read the [Missed Class Policy](#).

Academic dishonesty will not be tolerated. Please read The University’s Policy Statement on Academic Dishonesty available at [http://www.utoledo.edu/dl/students/dishonesty.html](http://www.utoledo.edu/dl/students/dishonesty.html).

**STATEMENT OF ACADEMIC DISHONESTY**

of Department of Biological Sciences is listed at the end of the syllabus.

**COURSE EXPECTATIONS**

The students will be expected to have read all papers and prepared themselves for discussion during the class period. Since this course is based almost entirely on demonstrating comprehension of the materials presented, students are required to attend every class. Unexcused absences will not be tolerated, and excused absences should be rare. While attending class is important, participating in class discussions is also critical for a good grade in this class. Students must demonstrate that they have read the assignments and that they have done the extra background analyses needed to comprehend the material. The only way to do this is to get involved in the discussions, ask questions and be prepared to answer. *Everyone will talk every class period, so come prepared.*

**GRADING**

Students will receive a letter grade for this course. Grades will be based upon student performance on the following criteria:

- Class Participation/In class quizzes: 15%
- Attendance (days present/class period): 15%
- Class Assignments (in class and take home): 25%
- Term Paper: 25%
- Oral Presentation: 20%

Grades will utilize a straight scale (see below) unless overall class performance dictates use of a curve.

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<tr>
<th>Grade</th>
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<td>B</td>
<td>80%</td>
</tr>
<tr>
<td>C</td>
<td>70%</td>
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<tr>
<td>D</td>
<td>60%</td>
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<tr>
<td>F</td>
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3
<table>
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<td>93-100</td>
<td>C</td>
<td>73-76</td>
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<tr>
<td>C+</td>
<td>77-79</td>
<td>F</td>
<td>50-0</td>
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Writing assignments have specific due dates – papers handed in late will receive a penalty of no less than 5% per day late.

**ASSIGNMENT/ASSESSMENT DESCRIPTIONS**
Refer to Grading policy. Students’ performance is assessed based on the grading policy after each class meeting.

**COMMUNICATION GUIDELINES**
The instructor is available by appointment, or can answer Email questions.

**STUDENT SUPPORT SERVICES-TECHNICAL SUPPORT**
If you encounter technical difficulties with Blackboard, please contact the UT Online Help Desk at (419) 530-8835 or utdl@utoledo.edu. The Help Desk offers extended hours in the evenings and on weekends to assist students with technical problems. When calling after hours, leave a detailed message, including your Rocket Number and phone number, and an Online Learning staff member will respond on the next business day. The UT Online Help Desk website is available at: [http://www.utoledo.edu/dl/helpdesk/index.html](http://www.utoledo.edu/dl/helpdesk/index.html).

**STUDENT SUPPORT SERVICES-LEARNER SUPPORT**
The University of Toledo offers a wide range of academic and student support services that can help you succeed:

**University Libraries**
University Libraries are your gateway to information at the University of Toledo connecting you with the resources you need for education, and research.

**eTutoring Services**
The Ohio eTutoring Collaborative, in partnership with The University of Toledo, now provides online tutoring support for all UT students. eTutoring Services are offered in a wide array of
subjects, including Writing, Math, Calculus, Statistics, Accounting, Biology, Chemistry, and Anatomy and Physiology.
Learn more at: https://www.etutoring.org/login.cfm?institutionid=232&returnPage

Office of Academic Access
The Office of Academic Access provides accommodations and support services to students with disabilities.
Learn more at: http://www.utoledo.edu/utlc/academicaccess/index.html

Counseling Center
The Counseling Center is the university's primary facility for personal counseling, psychotherapy, and psychological outreach and consultation services. The Counseling Center staff provide counseling (individual and group), mental health and wellness programming, and crisis intervention services to help students cope with the demands of college and to facilitate the development of life adjustment strategies.
Learn more at: http://www.utoledo.edu/studentaffairs/counseling/

CLASS SCHEDULE-Example of Spring 2009 Semester, last time offered
Depending on the time available, each session will cover one or two papers that bear on the topics shown below. A list of papers is available at the end of the syllabus of the students to choose from. Most of times a group of papers on the same subject are provided. The students are required to present only one but encouraged to compare between different papers. The instructor will begin each class with a brief introduction.

Week of
Jan. 13 Introduction/Overview/ Example presentations
Jan. 20 Axon guidance: ephrins (1-6)
Jan. 27 Axon guidance: Semaphorins (7-12)
Feb. 3 Axon guidance: Slits (13-18)
Feb. 10 Axon guidance: netrins (19-24)
Feb. 17 Neuronal migration (25-30)
Feb. 24 Neuronal polarity (31-36)
Mar. 2 Dendritic arborization (37-42)
Mar. 10 Spring Break-no class
Mar. 17 Presynaptic plasticity (43-48)
Mar. 24 Postsynaptic plasticity (49-54)
Mar. 31 Ca++ in synapse plasticity (55-60)
Apr. 7 Behavior (61-66)
Apr. 14 Final presentation
Apr. 21 Final presentation
Apr. 28 Final presentation/review
May 5 Final Week-no class

Literature list:


Note: Both the class schedule and covered topics may be adjusted at the instructor’s discretion.
STATEMENT OF ACADEMIC DISHONESTY

Department of Biological Sciences

Academic dishonesty by students enrolled in undergraduate and graduate courses and programs offered by the Department of Biological Sciences will not be tolerated. Academic dishonesty includes but is not limited to:

1. Obtaining assistance from another individual during an examination.

2. Giving assistance to another individual during an examination.

3. The unauthorized use of study material or textbooks during an examination.

4. Changing answers on an examination after it has been returned and then submitting it for regrading.

5. Plagiarizing written assignments. Plagiarizing includes but is not limited to: a) Copying laboratory reports from previous years, b) copying or paraphrasing reports, term papers, or these prepared by other students, c) unauthorized collaboration in the preparation of reports, term papers, or theses, and d) use of another author’s materials without appropriate acknowledgement through quotation and citation.

6. Attempting to bribe or otherwise induce an instructor to alter either a grade or examination score.

7. Obtaining or attempting to obtain a copy of an examination prior to its administration.

In accordance with policies presented in The Student Handbook and The University Catalog, Instructors have the responsibility and right to report cases of alleged dishonesty to departmental, college, and university administrative units. Students involved in academic dishonesty may expect to receive a grade of F on specific assignments as well as in the course where the assignment was made. In addition, disciplinary action may be recommended through appropriate college and university disciplinary committees. Please consult your instructor for instructions on the implementation of this policy.