“Mechanisms of Cell Functions”
Spring, 2017
Tu/Fr 11:00AM - 12:20PM
Room: SSC GL-014

Instructor:
Dr. Bruce Goode, Ph.D.
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Office Hours: MON 11:00-12:00

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Overview:
This is an advanced research-based course on mechanisms of cellular functions. Topics include intracellular transport, cytoskeleton, cell motility, cell division, and cell adhesion. The learning goals are to: (1) gain an in-depth understanding of strategies used in cell biological research; (2) become skilled at designing experiments, interpreting data, and formulating testable hypotheses; and (3) learn how to effectively communicate your scientific ideas. This is a graduate level course designed for first year graduate students in the MCB PhD program. It is open to masters students and undergraduates, provided that they have the necessary background to succeed, e.g., by having taken previous other upper division (100 and above) life sciences courses and/or through ample research experiences in molecular and cell biology labs. Undergraduates in their first two years are not permitted to take this class.

Also please note that this course is not a continuation of introductory biology (BIOL14,15,16). BIOL100 fulfills that purpose, as an advanced survey course in cell biology, and is in fact offered this semester (M,W,R 11-11:50). The focus of BIOL103B is completely different, centering on how research discoveries are made, the experimental procedures used to make those discoveries, and how one applies this knowledge to new questions. Taking this course requires a strong preexisting foundation in genetics, biochemistry, molecular biology, and cell biology. It is each student’s responsibility to reinforce these areas, early in the semester, and if they find that they are not keeping up, seek immediate guidance from the TA and instructor.
Textbook:

*Cell Biology* by Pollard and Earnshaw, 3rd edition (2017) (available online). Note: this serves a ‘supportive’ role in the course, and is not strictly required. It is highly recommended that Ph.D. students in the MCB program obtain an advanced Cell Biology textbook like this, to have as a future resource throughout their studies.

Course format:

This will be a student-participation and lecture-based course. Class is 80 min long (11:00-12:20). Most Fri lectures start with a 30 min student-led presentation of an assigned paper accompanying that week’s topic (see separate handout for details). Approximately every other Tues, lecture will start with a 30 min quiz.

Grading:

- **Paper summaries (20% of final grade)** – By the morning of the day in which a paper is presented in class (typically Fri), every student is required to turn in a summary of that paper (1 page max – see handout). These assignments are due on LATTE by 10 AM. **NO TARDY SUBMISSIONS.** The assigned papers will be regularly updated on LATTE. The summary you write should include your thoughts and questions about the paper. These summaries serve as learning tools, and will be graded as follows: 2 for a serious effort; 1 for a ‘just OK’ effort; 0 for didn’t turn in, or clearly did only a cursory read of the abstract.

- **In-class paper presentations (20% of final grade)** – Students will be paired, and will work together to generate an in-class presentation of an assigned paper (primary literature). Each student pair presents a paper once in the semester. Presentations are 30 min long (see handout for details). You will be graded on how well you understand the paper, how well you explain and communicate both the broad questions and specific findings, and how well you field questions about the paper. If you are ill on the day of your paper presentation (with a doctor’s note), you will be reassigned ONCE to another date to make it up. Each pair of students should be prepared to execute the presentation even if a member is missing, since you will have prepared it all together.

- **Quizzes (5 total; 35% of final grade)** – Approximately every other week there will be a short (30 min) quiz given in class (typically on Tuesdays). Each quiz will have questions focused on material covered the week before in class. Every effort will be made to grade quizzes and return them to you by the next lecture. Each quiz is worth 7% of the final grade; there will be 5 quizzes. If you have a legitimate reason for missing one quiz, you need to contact the instructor (Dr. Goode) in advance announcing that you will miss that quiz. If the instructor approves the reason, then you will be allowed to drop that one quiz, and your final exam (see below) will count for 30% instead of 25% of your grade. **Use of electronics (e.g. laptop, tablet, smart phone) will not be permitted during quizzes and exams.**

- **Exam (25% of final grade)** – There will be ONE final in-class exam (80 min) on the last day of class (May 2, 2017). The exam will be cumulative for the
semester. There is no make-up exam, and no early exam. In the event of a documented medical or family emergency, 60% of your grade (instead of 35%) will be determined from your quizzes.

Reading:
The required reading will be primary research papers announced in class and available on LATTE. In addition, supporting information on the topics covered in class can be found in specific chapters of the Textbook (available online): Pollard (3rd edition).

Attendance and expectations in class:
The textbook and other readings are not a substitute for attendance; reading only covers a small portion of material discussed in class. Further, the lecture notes that will be posted on LATTE after class will not include everything covered in class (much of this will go on the board or be communicated orally, and it is every student’s responsibility to take notes). Attendance is therefore required to fully understand the material. CELL PHONES AND OTHER E-DEVICES are COMPLETELY prohibited in class (we will enforce). Laptops and tablets will be allowed ONLY if they are being used exclusively for note taking – NO emailing, facebooking, web surfing, texting, etc. Further, I insist that you turn off your cell phone, skype, email alerts, and other notifications; Beeps, BUZZes, and annoying vibrations are disruptive to the class. Also, NO working on assignments for other classes in this class.

Learning/ other disabilities:
If you are a student with a documented disability at Brandeis University and if you wish to request a reasonable accommodation for this class, please see us immediately. Please keep in mind that reasonable accommodations are not provided retroactively.

Academic integrity:
Conduct inconsistent with the policies on academic honesty in "Rights and Responsibilities" will not be allowed, and if it occurs, will be referred to the Office of Campus Life without exception.