Instructor: Ram Dixit (ramdixit@wustl.edu); 935-8823; McDonnell Hall 216
Office hours: Thursday 2-4 pm

TAs: Meredith Johnson, mmpjohnson@wustl.edu (Jan 13-Feb 12 material)
Sharon Jiang, cherry.jiang@wustl.edu (Feb 19-Mar 26 material)
Alex Lu, ajlu@go.wustl.edu (Apr 2-Apr 23 material)
Weekly TA office hours: Will be announced in class—write them down!


Lectures: Lab Sciences 300, Tues and Thur, 10 - 11:30 am

Streaming (Lecture videos):
To access videos of the lectures, click on Videos in the Blackboard course menu, and then find the video you would like to watch. The videos will be organized in this section by instructor and/or by date. Videos will appear on Blackboard within 24 hours of their recording. Please remember that the availability of the videos is dependent on the availability of Blackboard. Blackboard is unavailable every Friday from 3:00 a.m. to 5:00 a.m. for scheduled maintenance. If you have problems accessing the videos, please contact Student Technology Services by submitting a trouble ticket at sts.wustl.edu, or stopping by the STS Help Desk in Gregg Hall on the South 40.

Course Website: http://bb.wustl.edu
Login using your wustl key and password.

Pdfs of powerpoints for next-day’s lecture posted by 8 pm on Mondays and Wednesdays. If you wish, print out for class.
Study Guides posted each Thursday to cover that week.

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<tr>
<th>LECTURE</th>
<th>TEXT READING (Chapter)</th>
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<td>Tu Jan 13</td>
<td>Introduction, origin and evolution of cellular organisms</td>
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<td>Th Jan 15</td>
<td>Reduction and emergence</td>
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<td>Tu Jan 20</td>
<td>Protein structure and Macromolecular assembly</td>
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<td>Th Jan 22</td>
<td>Experimental techniques</td>
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<td>Tu Jan 27</td>
<td><strong>QUIZ 1</strong> on Jan 13 – Jan 22 material Membrane structure, pumps</td>
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<td>Th Jan 29</td>
<td>Carriers and Channels</td>
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<td>Tu Feb 3</td>
<td>Membrane physiology</td>
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<td>Th Feb 5</td>
<td>Structure of the nucleus</td>
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<td>Tu Feb 10</td>
<td><strong>QUIZ 2</strong> on Jan 27 – Feb 5 material Nuclear and mitochondrial trafficking</td>
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<td>Th Feb 12</td>
<td>Biosynthesis in ER and Golgi</td>
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Tu Feb 17  **IN-CLASS TEST #1** on material through Feb 12

Th  Feb 19  ER ↔ Golgi trafficking 21 (till p. 378)

Tu  Feb 24  Trans-Golgi, lysosome biogenesis, endocytosis 21 (p. 379-388); 22

Th  Feb 26  Endocytosis and protein degradation 23

Tu  Mar 3  **QUIZ 3** on Feb 19 – Feb 26 material
Plasma membrane receptors 24

Th  Mar 5  Transducers & Second messengers 25, 26

**SPRING BREAK** (Mar 8-14)

Tu  Mar 17  Signaling pathways 27 (till p. 507)

Th  Mar 19  Cells and molecules of the extracellular matrix 28, 29

Tu  Mar 24  **QUIZ 4** on Mar 3 – Mar 19 material
Cellular adhesion, intercellular junctions 30, 31

Th  Mar 26  Overview of cytoskeleton, actin 33

Tu  Mar 31  **IN-CLASS TEST #2** on Feb 19 – Mar 26 material

Th  Apr 2  Microtubules, intermediate filaments 34, 35

Tu  Apr 7  Motors, intracellular motility 36, 37

Th  Apr 9  Cellular motility, muscles 38, 39

Tu  Apr 14  **QUIZ 5** on Apr 2 – Apr 9 material
Cell cycle, G1 phase 40, 41,

Th  Apr 16  G2 and mitotic entry 43

Tu  Apr 21  Mitosis 44 (till p. 806)

Th  Apr 23  **MAKE-UP QUIZ** on Apr 14 – Apr 21 material
Cytokinesis and course summary (movie) 44 (807-811)

**FINAL EXAM:** Apr 30, 2015. From 10:30am-12:30pm.

**Biology 334: Course Administration**

**Lectures**
I will be lecturing in close interface with the textbook and using figures from the textbook to explain concepts. Frequently, I will also insert new material that updates our understanding based on new research.

The lectures are videotaped and streamed (access information is at the start of the lecture schedule).

In the past, some students preferred to come to class while others preferred to learn the material via streaming, with no obvious difference in test performance between the two groups. However, I strongly encourage you to attend lectures as this will prevent you from falling behind, give you the opportunity to ask questions and of course I love having you in the room.
Textbook
The textbook does a wonderful job of covering the material important to know about cell biology. The syllabus indicates the textbook chapters relevant for each lecture. I suggest that you use the textbook as another voice for explaining/discussing the material covered in class. The textbook also has plenty of additional details that we won’t have time to cover in class—you may find these additional details helpful and interesting (which they are!), but you are not responsible for every fact in the reading. You will only be tested on the material that I cover in lecture.

Study Guides and Questions
Each Thursday I will post “Study Guides” on the website that indicate the level at which I want you to master the reading and the lectures. In other words, the study guides will highlight the important concepts and names that I want you to know for this class. In the past, students have found the Study Guides to be very helpful in preparing for quizzes and exams. Note that the study guides may not address all your questions, and you are encouraged to email me (ramdixit@wustl.edu) with any questions you might have.

Quizzes
On the Tuesdays designated with a QUIZ on the lecture schedule, there will be an in-class quiz from 10:10 - 10:20 before the start of the lecture. Each quiz is worth 10 points. The quiz will have 6-7 short, straightforward questions on the lecture material of the prior 2 weeks or, in some cases, the prior week to accommodate in-class test schedules; if you have attended/watched lectures regularly and kept up with the reading, they should present no difficulty. The regular quizzes are to counteract the temptation to restrict studying to a last-minute blitz before each in-class test—a temptation that usually leads to regrettable consequences! The numerical total of all your quiz grades will represent 10% of the final grade. One optional MAKE-UP QUIZ will be given at the end of the semester to deal with an absence or to replace your lowest quiz grade. Otherwise, there are no make-up quizzes.

Exams
There are 2 in-class tests and a final. The tests will be worth 100 points each. The final exam is longer (2hrs) and will be worth 133 points. On the final exam, 100 points will cover lectures from the last third of the course (i.e., Apr 2-Apr 23) and 33 points will be for questions that review the course as a whole.

Posted on the course website are quizzes, tests and model answers from the past 2 years. I always make up new questions for tests, so the old tests are for guidance. Many students report it helpful to take previous tests (use the versions that do not have the answers so you really have to think!) and to team up with others to discuss their answers and the course material in general.

Re-grading policy
If you feel an error has been made in grading a quiz or test question, or that your points were not totaled correctly, please talk to the TA first. If you still have questions, come to my office hours or talk to me after class. Note that TAs generally tend to be more generous than me in terms of partial credit, so be sure that you deserve extra credit or else you may lose points when I grade the question at hand.

Study Help
Three undergraduate TAs are associated with Bio 334, with a particular TA associated with each third of the course as listed on the first page of the syllabus. The TAs will hold weekly office hours and I encourage you to go to them if you need help. If you should remain unclear about a topic after going over it with the TA, please come to my office hours. If you can't make these, arrange an appointment by email. General review sessions will be held before each exam; time and place will be announced in class.

Make-up Exams
A make-up for an in-class test can be taken only if a medical excuse, signed by a physician, is presented. A make-up must be taken to avoid a zero, which will be included in calculating a student’s grade. Because the make-up will be different from the test taken by the rest of the class, and therefore may be harder or easier, its score is not included in calculating a student’s final grade—however, I consider the makeup exam grade is determining whether to raise your final grade if you are on the border (see “Final Grade” below).
"Field Trip": Attending a Research Seminar in Cell Biology

An additional component of Bio 334 includes the experience of attending a one-hour, on-campus research seminar in cell biology. You may or may not follow (all of) the science being presented, but the idea is that you get a better sense as to what the biomedical research community is really like. In the past, students have found this experience to be extremely valuable in terms of appreciating the "real-life" value of the material covered in class and being exposed to cutting-edge cell biology research.

You can choose to attend any one of the seminars posted on the website (list will go up 2 week after course begins). Afterwards, you are asked to send me an email (ramdixit@wustl.edu) describing what happened, generally in ½ to 1 page. Please send me your report as an email (i.e., as text in the body of the email), and not as an attachment. I expect that you'll follow enough of the talk to be able to give a general overview of the seminar, and if you followed even some of the details, please convey what you learned. Should you get lost early on, then I'd like to hear about your impressions of the venue: what did you learn about the kinds of people who are doing this kind of science, the kinds of questions asked at the end, the energy (or possibly lack of energy!) in the room, the way the presenter fashioned her/his story? You are encouraged to include comments on this "sociology" parameter even if you able to report as well on the science.

You'll receive 15 points for attending and then writing this report; i.e. if I don't receive anything, you won't get these 15 points. If you send me a report that strikes me as rushed and shallow, I may ask you to give it more attention before awarding the credit.

Final Grade

Your aggregate quiz grade will be weighted to be 10% of the final grade. All 3 exams, plus the "field trip" grade, are included in calculating your aggregate exam grade (out of a total of 348 points: 100+100+133+15). The aggregate exam grade will be weighted to be 90% of the final grade. Once your final grade is calculated, letter grades will be assigned based on cutoffs (i.e., this class is NOT curved as I do not like to pit students against each other).

The grade cutoffs for 2014 were:

- 95-100  A+
- 88-94   A
- 80-87   A-
- 73-79   B+
- 66-72   B
- 59-65   B-
- 52-58   C+
- 45-51   C
- 38-44   C-

After all letter grades are assigned, I look at the individual records of students given a C+ or a B+ whose numerical averages are "near the border." If one test score is clearly much lower than the other two, thereby bringing down the average, I usually award a B- or an A- grade to such students. For students in the D and F categories, I also look for patterns of marked improvement and may raise a grade if only one exam is responsible for the very low average. In general, however, you should expect that all 3 exam scores and all quiz scores will be included in your final grade, and study accordingly.

General University resources

Accommodations based upon sexual assault:
The University is committed to offering reasonable academic accommodations to students who are victims of sexual assault. Students are eligible for accommodation regardless of whether they seek criminal or disciplinary action. Depending on the specific nature of the allegation, such measures may include but are not limited to: implementation of a no-contact order, course/classroom assignment changes, and other academic support services and accommodations. If you need to request such accommodations, please direct your request to Kim Webb (kim_webb@wustl.edu), Director of the Office of Sexual Assault and Community Health Services. Ms. Webb is a confidential resource; however, requests for accommodations will be shared with the appropriate University administration and faculty. The University will maintain as confidential any accommodations or protective measures provided to an individual student so long as it does not impair the ability to provide such measures.
Bias Reporting:
The University has a process through which students, faculty, staff and community members who have experienced or witnessed incidents of bias, prejudice or discrimination against a student can report their experiences to the University’s Bias Report and Support System (BRSS) team. See: brss.wustl.edu

Mental Health:
Mental Health Services’ professional staff members work with students to resolve personal and interpersonal difficulties, many of which can affect the academic experience. These include conflicts with or worry about friends or family, concerns about eating or drinking patterns, and feelings of anxiety and depression. See: shs.wustl.edu/MentalHealth