

MCB 195B: Genomic Medicine Colloquium
Fall 2018
1 unit

Instructor Prof. Ryan Gutenkunst Department of Molecular and Cellular Biology University of Arizona	Contact Information Email: rgutenk@email.arizona.edu Office Hour: Friday 3 pm Life Sciences South 325
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Course Description

Students will explore the impacts of genomics on medicine, learn how to succeed in university-level biology courses, and explore career opportunities related to molecular biology and genomics. This is a first-year colloquium course. Topics will include big data biology, precision cancer treatment, personalized genomics, and ethics.

Required Course Materials

Reading: The required text is *The Language of Life: DNA and the Revolution in Personalized Medicine*, by Dr. Francis Collins. Additional readings will be available on D2L.

Course Objectives and Expected Learning Outcomes:

By participating in the class, students will be able to:

- Apply evidence-based learning strategies to the study of biology.
- Identify ethical questions that arise as new biomedical research emerges.
- Describe career opportunities in molecular biology and genomics.
- Describe the role of genomics in modern biomedical research and medicine.
- Assess the ethical implications of emerging genomic technologies.

Attendance and Class Participation Policies

MCB 195B is an active colloquium where students are expected to attend class ready to discuss the week's reading and participate in the related activities. As such weekly attendance and participation are required. Exceptions will be made due to University-authorized commitments (pre-approved by the UA Dean of Students), or holidays observed by an organized religion with which you are affiliated, provided the instructor is contacted *before* the discussion is missed, proper documentation is provided, and a make-up assignment is completed within one week of the absence. At the instructor's discretion, some form of accommodation may be made in the event of extraordinary circumstances such as serious illness, accident, or family emergency.

The UA policy concerning Class Attendance, Participation, and Administrative Drops is available at: <http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop>.

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable: <http://policy.arizona.edu/human-resources/religious-accommodation-policy>.

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored: <https://deanofstudents.arizona.edu/absences>

Required Course Activities

Reflection Journal Entries (12): Students will make weekly entries in an online journal in which they will reflect on the current week's reading and the previous week's discussion. These journal entries will be **due Monday night at 11:59 pm**. For each student, his or her lowest-graded journal entry will be dropped and not contribute to his or her final grade.

Class Discussion: Students will participate in class-wide discussion. For each student, his or her lowest participation grade will be dropped and not contribute to his or her final grade. Absences may be excused with prior permission of the instructor.

Final Presentation: On the date of the final exam, students will make small-group presentations on a career related to genomics. A grading rubric will be provided to students in advance.

Final Exam

During the scheduled final exam time, students will make small group presentations on a career related to genomics.

<https://www.registrar.arizona.edu/courses/final-examination-regulations-and-information>, and Final Exam Schedule, <http://www.registrar.arizona.edu/schedules/finals.htm>

Grading Scale and Grade Policies

Final grades will be calculated based on the weights below, and letter grades will be assigned based on the rubric below. Students will receive feedback on their discussion participation each week.

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|---------------------------------|-----------|
| • Journal entries: 35% | S: >90% |
| • Final presentation: 35% | P: 60-90% |
| • Discussion participation: 30% | F: <60% |

Requests for incomplete (I) or withdrawal (W)

These must be made in accordance with University policies, which are available at <http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete> and <http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal> respectively.

Late Assignments Policy

Unless prior approval is granted by the instructor, journal entries must be submitted on time and late entries will not be accepted.

Extra credit policy

Extra credit assignments may be offered at the discretion of the instructor. If they are offered, all students will have the option of completing them.

Classroom Behavior Policy

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, **our focus is on the tasks at hand and not on extraneous activities** (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Students are asked to refrain from disruptive conversations with people sitting around them during discussion. Students observed engaging in disruptive activity will be asked to cease this

behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students.

Threatening Behavior Policy

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See

<http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

Accessibility and Accommodations for Students with Disabilities

At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, you are welcome to let me know so that we can discuss options. You are also encouraged to contact Disability Resources (520-621-3268) to explore reasonable accommodation.

If our class meets at a campus location: Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

Academic Integrity Policies

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See:

<http://deanofstudents.arizona.edu/codeofacademicintegrity>

<http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

The University Libraries have some excellent tips for avoiding plagiarism, available at

<http://new.library.arizona.edu/research/citing/plagiarism>.

Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent. Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.

UA Nondiscrimination and Anti-Harassment Policy

The University is committed to creating and maintaining an environment free of discrimination; see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. We also want to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others.

Additional Resources for Students

UA Academic policies and procedures are available at <http://catalog.arizona.edu/policies>

Student Assistance and Advocacy information is available at

<http://deanofstudents.arizona.edu/student-assistance/students/student-assistance>

Confidentiality of Student Records

<http://www.registrar.arizona.edu/personal-information/family-educational-rights-and-privacy-act-1974-ferpa?topic=ferpa>

Subject to Change Statement

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.

Tentative Schedule of Topics and Activities

Week	Date	Topic	Reading
1	August 22 nd	Introduction to course	
2	August 29 th	Molecular biology fundamentals Metacognition	Collins: Ch 1, Appendices B&C
3	September 5 th	Mendelian disease Growth Mindset	Collins: Ch 2, Appendix D
4	September 12 th	Genome-wide association studies Retrieval Practice	Collins: Ch 3
5	September 19 th	Cancer Elaboration	Collins: Ch 4
6	September 26 th	Race Spaced Practice	Collins: Ch 5
7	October 3 rd	Infectious disease Interleaving	Collins: Ch 6
8	October 10 th	The brain Learning resources at UA	Collins: Ch 7
9	October 17 th	Aging Getting involved in research	Collins: Ch 8
10	October 24 th	Pharmacogenetics MCB Accelerated Master's degree	Collins: Ch 9
11	October 31 st	<i>de novo</i> mutations Professional Science Master's	Articles from d2l
12	November 7 th	No class – Dr. Gutenkunst away	
13	November 14 th	CRISPR Math and programming at UA	Articles from d2l
14	November 21 st	No class – Thanksgiving	
15	November 28 th	Big data in genomics Introduction to Final Presentation	Articles from d2l
16	December 5 th	Presentation preparation	
	December 7 th	Final Exam: Student presentations	