

TO: MIT Biology Majors
FROM: H. Robert Horvitz, Professor of Biology
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I am writing to inform you of an exciting offering from the Department of Biology for the 2025-2026 academic year: a set of 3 very current seminar courses, 7.34x, Advanced Undergraduate Seminars. A complete listing of the courses, instructors, and brief course descriptions is enclosed. The topics are highly varied and encompass areas of genetics, genomics, epigenetics, biochemistry, molecular biology, cell biology, developmental biology, evolutionary biology, immunology, metabolism, wound healing, stem cells, regeneration, gene editing, aging, cancer, muscular dystrophy, diabetes, neurodegenerative disorders, autoimmune disorders, other human diseases, vaccines, drug delivery, therapeutics, and biotechnology.

A student can take any number of these courses. The courses, which generally involve four to eight students, are for 6 units, graded pass/fail, and meet two hours each week. The focus is on reading and discussing the primary research literature. Most courses have one short written assignment and one oral presentation. Some include field trips (possibly remote this year) to MIT research laboratories or to companies using technologies discussed in the courses. The level of each course will be tailored to the students who enroll. Because of the small size of these courses, we expect students not to drop these courses once they have begun.

The scheduling of these courses is flexible. The day of the week and 2-hour period of the day each course will meet will be determined jointly by the prospective students and the instructors at the beginning of the semester.

These courses offer a number of special features: small class size, a high degree of personal contact with the instructor(s), a focus on the primary research literature, and an opportunity to discuss current problems in biology interactively. I believe these courses greatly enrich an undergraduate's experience. There are limited alternative opportunities available to undergraduates to interact closely with instructors who are experienced full-time researchers; to learn to read, understand, analyze and critique primary research papers; and to engage in the type of stimulating discussions and debates that characterize how science is really done. Most advanced MIT undergraduates (generally juniors and seniors) have been sufficiently exposed to the basics of biology to be able to read the primary literature and appreciate both methodologies and cutting-edge advances. These courses have two goals: first, to expose students to the kind of thinking that is central to contemporary biological research; and second, to impart specific knowledge in particular areas of biology. These courses are designed to be intellectually stimulating and also to provide excellent preparation for a variety of future careers that require an understanding both of what modern biology is and of how it is done. Students who have taken Advanced Undergraduate Seminars in the past (different specific courses, same general design) have been enormously enthusiastic about their experiences.

I am writing to you before Registration Day to encourage you to consider enrolling in one of these seminar courses. Please feel free to contact any of the instructors to learn more about their courses and in particular to discuss possible meeting days and times if those listed are not possible for you.

To learn more about the Advanced Undergraduate Seminars to be offered during the Fall 2024 semester, please check our website (<https://biology.mit.edu/undergraduate/current-students/subject-offerings/advanced-undergraduate-seminars/>) and/or contact the instructors.