

Organismic and Evolutionary Biology

Professor David Haig, Head Tutor

Biology was a term introduced in the nineteenth century to encompass all aspects of the scientific study of life. Since then, the biological sciences have undergone an explosive growth of knowledge making it possible to spend one's entire career within the confines of a single subdiscipline. A specialist in a narrow field, however, is unlikely to make the kinds of connections between biological disciplines that will lead to major new advances in understanding. Therefore, the concentration in Organismic and Evolutionary Biology (OEB) has been designed with an appreciation of the need for both learning in breadth and learning in depth.

OEB asks questions about the function, evolution, and interaction of organisms, both now and in the past. What kinds of organisms are there and how are they related? How is an organism's functional design and behavior related to its environment? What are the genetic and morphological mechanisms underlying an organism's development, and how is evolution influenced by development? The study of Organismic and Evolutionary Biology can be approached in many ways, reflecting primary interest in a specific lineage (e.g., plants, animals, microorganisms), level of organization (e.g., ecological systems, evolutionary genetics), approach (e.g., biomechanics, developmental biology), or even a desire to sample broadly across these themes. OEB is, therefore, inherently an interdisciplinary field, ranging over different levels of biological organization, evolutionary process, biological taxa, and physiological systems.

Students who are considering OEB as a concentration are encouraged to complete the three introductory courses (Life Sciences 1a, 1b, OEB 10) by the end of their sophomore year. From the firm foundation of these introductory courses, students explore one or more areas in depth by taking upper-level courses. Students are encouraged to consult the Life Sciences undergraduate website (www.lifescience.fas.harvard.edu) for further details on various pathways through the concentration (i.e., recommended combinations of mid-level and upper-level courses) and lists of faculty who can provide advice in these areas. Students may also design their own pathway.

For many students, the concentration will culminate in independent research leading to a senior thesis, but a thesis is not the only means by which a student may participate in research. The concentration website provides information on research opportunities in OEB as well as general advice about how to identify and contact faculty whose research you find interesting. The concentration also provides opportunities for students to study biological diversity in the field, whether this is close to home or abroad.

For information on the secondary field in Organismic and Evolutionary Biology, please see page 362 of this *Handbook* or the secondary fields website (www.secondaryfields.fas.harvard.edu/OEB/oeb.htm).

REQUIREMENTS

13 half-courses

1. *Required courses:*
 - a. Three half-courses in introductory biology: Life Sciences 1a, 1b, OEB 10.
 - b. At least four half-courses introducing broad fields of biology to be chosen from OEB 51, 52, 53, 54, 55, 57, 59; MCB 52, 54, 80; Life Sciences 2 (or OEB 102).
 - c. Two advanced-level half-courses in biology.
 - d. At least four half-courses to be chosen from offerings in applied mathematics, chemistry, computer science, mathematics (above the level of Math 1a), physics, and statistics.
2. *Thesis:* Required for Highest Honors in Field.
3. *Supervised Research and Reading Courses:* (OEB 91r, 99r, OEB 121b): Supervised research and reading half-courses do not satisfy requirement 1c. Any supervised research and reading course undertaken with mentors outside of OEB must be approved and co-sponsored by an OEB faculty member. Students undertaking a senior thesis usually take OEB 99r in both terms of their senior year.
4. *General Examination:* None.
5. *Pass/Fail:* All concentration requirements must be taken for letter-grade credit.

ADVISING

Academic advisers for students choosing to concentrate in OEB will be identified from among the OEB faculty, according to the student's range of interests. The OEB concentration adviser (Andrew Berry; 617-495-0684; berry@oeb.harvard.edu) is also available to answer questions about the concentration. Students considering doctoral studies in the life sciences should consult with their concentration advisers and other faculty to ensure that their undergraduate program is appropriate to their interests and goals. Those contemplating careers in medicine, dentistry or veterinary medicine are encouraged to consult with their appropriate pre-professional advisers regarding entrance requirements for these programs.

For up-to-date information on advising in Organismic and Evolutionary Biology, please see the Advising Programs Office website: www.fas.harvard.edu/~advising/concentrations/OrganismicEvolBiology.html.

RESOURCES

In addition to faculty research laboratories, there are several special facilities that offer unique and exciting opportunities for OEB concentrators. These include computer clusters, DNA sequencing facilities, imaging centers, an electron microscope, greenhouses and animal facilities. The Museum of Comparative Zoology (MCZ) houses extensive systematic collections of recent and fossil vertebrates and invertebrates. The Harvard University Herbaria (HUH) houses the Farlow reference library and Farlow Herbarium, the Gray Herbarium, and the Orchid Herbarium of Oakes Ames. The Botanical Museum houses the Ware collection of glass models of botanical specimens. The Arnold Arboretum in Jamaica Plain, the Harvard Forest in Peter-sham, and the Concord Field Station in Bedford also provide research facilities. Links to these and other facilities can be found on the OEB website (www.oeb.harvard.edu).

HOW TO FIND OUT MORE

Head Tutor of OEB: Professor David Haig, Botanical Museum 42B, 26 Oxford Street (617-495-5667), dhaig@oeb.harvard.edu. More information about the OEB concentration can be found at www.lifescience.fas.harvard.edu. The OEB concentration adviser is Dr. Andrew Berry, Biological Laboratories, Room 1082B (617-495-0684, berry@oeb.harvard.edu).

ENROLLMENT STATISTICS

Number of Concentrators as of November

Concentrators	2006
Organismic and Evolutionary Biology	23
OEB + another field	0
Another field + OEB	0