



Origins Major

The Origins major provides an interdisciplinary opportunity for students to combine **focused preparation** for individualized career paths with their **broad interest** in **overarching questions** –evolution, cosmology, human civilization over the millennia -- who are we, where did we come from, what is the nature of thought and language, how have our biological, physical and chemical environments arisen?

Whether your interests are Pre-Med or PhD, anthropoid or asteroid, quarks or quaggas, oolite or zoolite... This combination of breadth of exposure and focused study enriches the undergraduate educations of students whether they foresee traditional academic careers in basic research in component subjects (from anthropology and cognitive science to biology, chemistry, physics or astronomy), professional careers in medicine or law, or non-traditional career paths in entrepreneurship at the cutting-edge of technologies.

The essential attraction of the Origins major and its individualized curriculum is the joy of insight: Origins provides a unifying theme, enabling cross-cutting connections among traditional fields. The questions of Origins are intrinsic to human nature in its deepest sense as our students graduate to join a shared culture of educated women and men.

ORIG 101: Origins Prologue: Life, the Universe & Everything. 1-credit course, no pre-reqs & not required for major

ORIG 201: Origins I: From the Beginning

Usually team-taught, this interdisciplinary course provides a broad and rigorous overview of cosmology, cosmogony, and planetary sciences and their historical foundations encompasses basic concepts in astronomy, chemistry, geology, and physics. Attention is also given to the social relations of science, such as legal and public policy issues, public understanding of science, and science journalism. The first of a two-course series with complementary course ORIG 202. Prerequisites: None

ORIG 202: Origins II: Life in all its Diversity

Second of a two-course sequence and generally team-taught at the Cleveland Museum of Natural History, this interdisciplinary course builds on ORIG 201 to provide more advanced exploration for students. Students explore aspects of more advanced work in the origins disciplines such as astrobiology, cognitive science, biochemistry, computational biology, and integrative paleobiology, among many others. Attention is also given to issues such as the public understanding of science & science journalism. Prerequisites: None

ORIG 251: Origins Workshop

This course offers experiential learning opportunities for research or communication skills in one or more of the origins sciences. 1-6 credits

ORIG 301/MATH 301: Origins III: Modeling in the Origins Sciences

ORIG 351: Topics in the Origins Sciences

This course introduces students to advanced topics and research in the origins sciences. Intended primarily for majors, this course may be repeated for credit under different topics and instructors. Topics courses presented are diverse and each is sharply focused. Instantiations are pulled from a wide variety of subjects within and across ANTH, ASTR, BIOC, BIOL, CHEM, COGS, EEPS, MATH, PHYS, and more.

ORIG 360: Independent Study in Origins - Creative opportunities for studying a wide variety of subjects within and across ANTH, ASTR, BIOC, BIOL, CHEM, COGS, EEPS, MATH, PHYS, and more, with one or more origins faculty or fellows, generally at CWRU or the Cleveland Museum of Natural History.

ORIG 370: Research in Origins - Creative opportunities for hands-on research in a wide variety of subjects within and across ANTH, ASTR, BIOC, BIOL, CHEM, COGS, EEPS, MATH, PHYS, and more, with one or more origins faculty or fellows, generally at CWRU or the Cleveland Museum of Natural History.

Diverse undergraduate scientific research opportunities ~ Internships in public TV & public radio ~ Communicating Science to the Public



Origins Curriculum Overview

Bachelor of Arts in Origins Sciences (aka BA with Origins Major)

The Origins Major is administered not by a department but by the Institute for the Science of Origins

Requirements

Origins sciences seek to increase human understanding of the origin and evolution of complex systems, from the creation of the universe itself to the evolution of life in all its variety, to the emergence of the many components of human culture; from the most distant past, to the present and into the future. The Origins Major seeks to introduce the student to the wide range of underpinning sciences and then enable him/her to delve more deeply into at least one aspect of origins, whether physical, biological or cultural. The major therefore consists of 3 components in addition to the Arts and Sciences General Education Requirements -- the Science core, the Origins core, and the Origins Foci. For the foci, the student must complete at least two 300-level courses (and their pre/corequisites) drawn from at least 2 broad areas of concentration: Cosmology and Astrophysics, Planetary Science & Astrobiology, and Integrative Evolutionary Biology. Students will develop an educational plan in consultation with their major advisors as sophomores and submit that plan for approval by the Origins Major supervisory committee.

Of the 120 credits needed for graduation with a BA in Origins, 28-37 are SAGES Requirements of the CAS, 29 are in the Science Core, 15 are in the Origins Core, at least 12 are in the Origins Foci and approximately 30 are then open electives. Majoring in Origins would give the student added value in applying to medical school or to science-related MBA & JD programs, or in pursuing a career in science writing. Significant overlap exists with majors in origins-related sciences, making it reasonable for students to consider a second major in one of those sciences or to otherwise prepare themselves for disciplinary graduate programs in Anthropology, Astronomy, Biology, Chemistry, Cognitive Science, Geosciences, Applied Mathematics, Paleontology, and Physics, among others.

•Origins does not offer SAGES courses; students are encouraged to complete a Departmental Seminar and Senior Capstone in a department associated with their areas of Origins concentration or in the department of their other major if double-majoring.

Science Core

- MATH 121 & 122, or 125 and 126 -- 2 courses --8 credits
- PHYS -121 or 123 and 122 or 124 -- 8 credits
- CHEM -105 & 106, 2 courses --6 credits
- BIOL 214 & 225, 2 courses --7 credits

Origins Core

- Optional: ORIG 101 – 1 credit
- ORIG 201 & 202, 2 courses -- 6 credits
- MATH/ORIG 301 Modeling –3 credits
- ORIG 351–3 credits taken twice = 6 credits

Origins Foci

Each student will design a curriculum that includes concentrations in at least two Origins fields:

- Cosmology and astrophysics
- Integrative evolutionary biology (including biochemistry, physical anthropology, paleontology, and evolutionary cognitive science)
- Planetary science & Astrobiology

Each concentration must include at least two 300 or higher level classes and their prerequisites. The proposed comprehensive educational plan is submitted to the Origins Major committee for approval by the conclusion of the spring semester of the sophomore year. Subsequent revisions to the plan are encouraged, but must be submitted for approval by the committee at least two weeks before the beginning of the semester preceding the one in which the revisions have effect. Students are strongly encouraged to include an Origins research experience in their educational plans.