

# History and Philosophy of Science

Since atoms, force fields, genes, and photons cannot be seen, how did scientists ever manage to discover them? Can we really be sure they exist? Since we can not experience or experiment with the past, how can we be confident that nebulae, geological strata, and fossils are indicators of previous events?

Are there really clear distinctions between scientific reasoning and magical thinking? What is the difference between statistical correlations and causal relationships? How does science affect society? How does society influence science? These are some of the questions which are studied by historians of science and philosophers of science. Indiana University is one of the very few places in the country that has a Department of History and Philosophy of Science.

## Undergraduate Offerings

The undergraduate courses in history and philosophy of science are designed to be of service to a wide variety of students. Science majors may wish to study the historical development of their subject, e.g., the history of astronomy or the history of biology. People with philosophical interests will like the advanced courses on the nature of spacetime and causality.

Social science students and psychology majors may wish to choose courses on the nature of objectivity, rationality, and functional explanations. Pre-medicine, pre-dentistry, and nursing students should find an introductory course in scientific inference valuable for professional achievement tests. A course in the history of medicine will bring perspective to any medical sciences program.

Any citizen in modern society might well benefit from courses on scientific reasoning, the history of technology, and the development of scientific theories.

Most of the classes within the Department are small and give the student individual help in learning to read critically and to write clearly and effectively. All of the courses are taught by regular faculty members who are actively engaged in research and in creative writing.



## Joint Major

Although the Department does not offer a separate A.B. program, students may take a joint major in History and Philosophy of Science together with another field of study. Each joint major program is arranged individually in consultation with a departmental adviser. Typically it would involve a minimum of two courses in history of science and two in philosophy of science.

The joint major enables science students to add a humanistic dimension to their technical studies and gives arts students an acquaintance with a variety of scientific theories. The joint major is especially recommended for science education majors and pre-medical students.

## Career Opportunities

Although the undergraduate program is not career oriented, our courses and overall program enable students to acquire greater insight and understanding in their field of study, whether that be in the sciences,

**College of Arts and Sciences  
Indiana University, Bloomington**



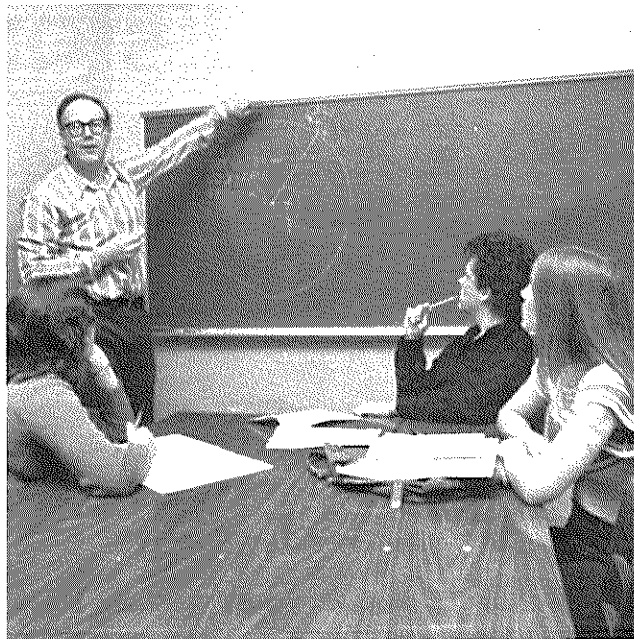
social sciences, humanities, law, medicine, or government service. Not only does history and philosophy of science provide the essential background for an understanding of the origins, development, and interrelationships of the various sciences from pre-history to the twentieth century, but it also offers an indispensable means for comprehending arguments about the validity and nature of evidence, especially statistical evidence, for a variety of scientific and technological claims that directly affect our lives. For example, how can laymen arrive at a rational decision as to whether smoking causes cancer? or whether the conjunction of Venus and Mars influences human affairs? The claims and counterclaims on such issues are complex, yet an educated person should be able to cut through the technicalities and jargon and arrive at the most rational answer.

## Graduate Study

For those interested in graduate work in History and Philosophy of Science, the Department offers M.A. and Ph.D. programs. Special research interests of the faculty include medieval science; history of physics, astronomy, chemistry, and biology; foundations of statistics; structure of relativity theory and quantum mechanics; theories of scientific method; and history of philosophical conceptions of science.

## High School Preparation

College-bound students should be aware of the importance of sound academic preparation in high school. Solid grounding in English, especially composition, and mathematics is absolutely essential for the successful completion of almost any major pro-



gram in the University. In many cases, strong preparation in the natural sciences and foreign languages is also vital. Students who enter college with only minimal preparation in any of these areas may run the risk of having their academic progress delayed or disrupted after arrival at the University.

## More Information

The University will gladly supply more information and advising for the prospective student. The University Division arranges student visitations, which are an excellent way to learn more about Indiana University and the History and Philosophy of Science Department.

Visitation and tour programs are available during the academic year from 8 a.m. to 5 p.m. Monday through Friday and from 9 a.m. to 12 p.m. on Saturdays.

To arrange for a visit or to request more information, contact:

Prospective Student Office  
 University Division  
 Maxwell Hall 122  
 Indiana University  
 Bloomington, Indiana 47401  
 or phone (812) 337-4962  
 337-9778

For more specific information about History and Philosophy of Science, write:

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 Goodbody Hall 130  
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 or phone (812) 337-3622