SCIENCE INFORMATICS (SCIF)

SCIF 110 Introduction to Science Informatics (3 credits)
This course introduces students, including Science Informatics majors, to timely topics encompassed in the interdisciplinary field of science informatics. Students learn about genomics, drug discovery, geographic information systems and other science topics with a hands-on, ethics-focused case study approach.

SCIF 151 Colloquium in Science Informatics I (1 credit)
Restriction(s): Science Informatics majors only. This course introduces Science Informatics majors to the University, the department of the College of Science and Mathematics, the culture of higher education and the field of science informatics. Students learn about campus resources and activities, careers in science informatics and techniques that foster the development of good study skills and academic success. Issues related to health, wellness, diversity and prejudice are investigated.

SCIF 152 Colloquium in Science Informatics II (1 credit)
Restriction(s): Science Informatics majors only. This second of a series of four colloquia will continue to build a science informatics identity among students while exploring the field of science informatics, options for post-baccalaureate study and careers in the discipline. Students will explore both scientific and societal issues related to contemporary problems such as genetic engineering. Students will explore potential topics for future investigation and research.

SCIF 250 Science Informatics Sophomore Summer Internship (2 credits)
Prerequisite(s): Permission of program advisor. Restriction(s): Only for Science Informatics majors who have completed their sophomore year. During the summer under the guidance of a sponsor in a medical or industrial site outside of the University, students will investigate advanced, individual research problems appropriate to science informatics. Although students are strongly encouraged to enroll in an off-campus externship, an equivalent on-campus experience with the Biology and Molecular Biology, Chemistry and Biochemistry, Computer Science or Mathematical Sciences department will be accepted for credit.

SCIF 253 Colloquium in Science Informatics III (1 credit)
Prerequisite(s): SCIF 152. In this third of a series of four colloquia, students continue their guided examination of contemporary issues investigated with the varied methodologies and tools of science informatics. Information about how disciplines within science informatics prepare research results and associated recommendations for their colleagues, government agencies and the public. The influence of public opinion and the political decision-making process upon scientific research is explored. Students explore possible research problems for later investigation.

SCIF 254 Colloquium in Science Informatics IV (1 credit)
Prerequisite(s): SCIF 253. This fourth of a series of four colloquia is a continuation of the third colloquium, SCIF 253, in which students continue their guided examination of contemporary issues investigated with the varied methodologies and tools of science informatics. Information about how disciplines within science informatics prepare research results and associated recommendations for their colleagues, government agencies and the public. The influence of public opinion and the political decision-making process upon scientific research is explored. Students explore possible research problems for later investigation.

SCIF 391 Science Informatics Summer Internship (3 credits)
Prerequisite(s): CSIT 212 and CSIT 270 and CSIT 337 and BIOL 434. During the summer under the guidance of a sponsor in a medical or industrial site outside of the University, students will investigate advanced, individual research problems appropriate to science informatics. Although students are strongly encouraged to enroll in an off-campus externship, an equivalent on-campus experience with the Biology and Molecular Biology, Chemistry and Biochemistry, Computer Science or Mathematical Sciences department will be accepted for credit.

SCIF 475 Ethics in Science Informatics (2 credits)
Prerequisite(s): SCIF 391. This course investigates ethical issues in science informatics research and the application of science informatics to product development and commercialization. For example, topics of accuracy, privacy, confidentiality, accessibility, stability, and completeness are considered in the context of genome databases and their associated computing technology. Science informatics law domains such as intellectual property (patents, trademarks, trade secrets), and licensing (patents, intellectual property or software) are presented. A seminar format and case studies facilitate interaction among faculty, students, and the issues.

SCIF 497 Research Experience in Science Informatics I (3 credits)
Prerequisite(s): SCIF 391 and departmental approval. The student works as a member of an interdisciplinary Science Informatics student team and develops a research proposal to a science informatics problem posed by Montclair State faculty, other academic institutions, or industry representatives.

SCIF 498 Research Experience in Science Informatics II (3 credits)
Prerequisite(s): SCIF 497 and departmental approval. The student works as a member of an interdisciplinary Science Informatics student team and implements his/her research proposal developed in SCIF 497 for a science informatics problem posed by Montclair State faculty, other academic institutions, or industry representatives.