# SCIENCE HONORS (SHN)

**SHN 101: How STEM Fields will Meet the Press ing Needs Facing Society Today (1 credits)**
This one-credit science honors course introduces science honors students to the STEM fields and the paradigm shift within this field brought about by a crucial need for greater integration within and between the various STEM fields. This new synthetic approach has developed as a response to a pressing need to find solutions to a number of crucial and current societal needs: environment/ecosystem restoration, energy productions, sustainable food and water production, and improvement in human health. Students will explore these societal needs and will begin a research project into the environmental challenge, which will include input from scientists from other courntries.

**SHN 102: Sustainable Good and Biofuels (1 credits)**
The WISH Program offers a four-year curriculum to a select group of science honors students consisting of Integrated and advanced study and research for dedicated future women scientists. Heavy focus is placed on original scientific research activities and project-based learning within a millieu of investigations into primary literature and acquiring skills necessary to engage in high-level scientific work. Mentoring from upper-class mentors and faculty and scientists from diverse fields and diverse countries is stressed.

**SHN 201: Why Studying Sex Can Strengthen Science (1 credits)**
This course examines the biological basis for gender-related differences in health, the influence of gender in biomedical research and on disease expression and treatment. The new field of Darwinian Medicine will be explored as possible explanation for why we get sick in the context of evolved defense systems brought about by natural selection (e.g., morning sickness). In addition sex differences in the brain, sex differences in drug development, and considerations regarding how women experience differently than men will be explored as well as unique health challenges faced by women throughout their lives.

**SHN 202: Leaping from Electrons to DNA Fingerprinting (1 credits)**
This course investigates the intricate connection between science and technology and how they influence each other and propel each other forward. The iterative phenomenon of how scientific knowledge allows us to build new technologies, which allow us to make new observations, which, in turn, allow us to accrue even more scientific knowledge that then inspires another technology will be explored. Students will learn how a single simple scientific idea can serve as a catalyst and then trace its applications and impact through several different fields of science and technology culminating in sophisticated modern techniques and discoveries that profoundly impact the human condition. Students will examine connections made by single technology to many different scientific and technological advances as well as how many different areas of scientific knowledge converge in a single technology. In addition, considerations regarding the unique challenges faced by women and technological fields will be explored.

**SHN 401: WiSH Honors Thesis (3 credits)**
This course is designed for students in the WiSH Honors Program undertaking a thesis during their final two years. The student will work under the guidance of a faculty thesis director and should complete a thesis prospectus formally outlining the thesis by the beginning of the second semester of her junior year, and have the prospectus approved by the faculty thesis director and chair of her department (may be the same individual). The student will then work with the faculty advisor (may be more than one) in reviewing relevant literature and carrying out research related to the thesis. During the final semester of the Senior year, the student should register for the three credit WiSH Honors Thesis Course and complete the thesis. Upon completion, the student should arrange for a presentation to the campus community. A written thesis should be at least 30 pages in length. The thesis will be evaluated by the faculty advisor and should include original research and work. It is expected that the thesis will represent the highest standards of academic excellence.