Academic Program of Study

A. Number of Credit Hours required

The **HSCI honors program** will consist of a minimum of 18 credits, including 12-15 credits of HSCI honors enriched courses and 3-6 credits of honors thesis research.

B. Types of Courses

1. Honors-enriched Courses (minimum 12 credits): Several HSCI upper level and some lower level courses will be enriched with an addition of a variety of experimental and/or theoretical project components specifically designed to expose an honors student to a higher level of learning experience.
2. Honors Research Methods (2 credit): An honors course involving an exhaustive review of Microbiological, Biochemical, Molecular Biological, Physiological and experimental animal methods and their application in research in health sciences.
3. Honors Thesis Research (3-6 credits). Students will identify and initiate a research project appropriate for the Honors Thesis. An Honors thesis may be completed based on either an experimental (6 credit hours) or a theoretical (3 credit hours) research problem.

C. Course Descriptions

1. Honors-Enriched Courses:

a. HSCI 2500-088 Honors AIDS: Biology and Beyond (3 credits): A study of the social, political, and biological dimensions of HIV/AIDS. The evolution of the HIV/AIDS pandemic and its impact on society and the most current scientific knowledge regarding the biology of HIV, antiviral drugs, and vaccines will be discussed.

b. HSCI 3000-088 Honors Human Anatomy (4 credits): (Prerequisite: General biology). A study of the human body with an emphasis on functional gross anatomy is presented to facilitate an understanding of body structure and function. Laboratory provides a learning experience through the use of anatomical specimens, models, and charts. Six hours lecture and lab combined per week.

c. HSCI 3006-088 Honors Microbes and Human Diseases (3 Credits): (Prerequisites: BIOL 1110/11, BIOL 1120/21, CHEM 1110/11, CHEM 1120/21, MATH 1530 or MATH 1910). A fundamental understanding of the biology of microbes and how they cause disease in humans emphasizing the structure, growth, virulence properties, and diseases caused by medically important microbes.

d. HSCI 3020-088 Honors Human Physiology (4 credits): (Prerequisite: HSCI 3000). A study of the homeostatic mechanisms in man as they pertain to normal physiology and mechanisms of disease. The teaching laboratory provides the students an opportunity to learn by measuring many of the vital physiological processes. Three hours lecture and lab per week.

e. HSCI 3030-088 Honors Introduction to Biochemistry (4 credits): (Prerequisite: CHEM 1110/11 and CHEM 1120/21). An introduction to general biochemistry of eukaryotic and prokaryotic cells. Includes study of the cell chemistry, mechanisms of energy production, enzymes, basics of macromolecular structures and transcription and translation of genetic information. Laboratory includes techniques involved in studying the biochemistry of cells. Three hours lecture and three hours laboratory per week.

f. HSCI 3046-088 Honors Human Genetics (3 credits): (Prerequisites: one year of college biological sciences, one year of inorganic chemistry, and MATH 1530 or 1910). This course explores the foundations and frontiers of modern human genetics, with an emphasis on understanding the latest discoveries in this rapidly advancing field of research.

g. HSCI 3540-088 Honors Immunology (3 credits): A lecture presenting current concepts of the basic mechanisms of immunity and selected laboratory techniques to study the development of the immune response.

h. HSCI 4067-088 Honors Neurology (4 credits): (Prerequisites: Human Anatomy 3000 and Human Physiology 3020). A basic study of human neuroanatomy and neurophysiology. This course explores the motor and sensory pathways, as well as the integration systems of the central nervous system. Laboratory work utilizes preserved human specimens, models, slides and charts. Two hours lectures and two 2-hour labs per week.

2. HSCI 4507/HSCI 5507 Honors Research Methods (2 credits): This required course for all honors students will be offered in both the fall and spring semesters and will involve an exhaustive review of

Microbiological, Biochemical, Molecular Biological, Physiological and experimental animal methods and their application in research in health sciences. The course will be team-taught by faculty who will bring their research expertise to the classroom to make learning research methods more interesting.

3. HSCI 4018 Honors Thesis (3-6 credits): The Department of Health Sciences will require the completion of an honors thesis (HSCI 4018) as the capstone course. Students are expected to talk/discuss with a faculty member and choose an advisor for the honors thesis by the end of the second semester of their junior year at the latest. A faculty member in the Department of Health Sciences, chosen by the student, will direct the thesis project. Two additional faculty members, one from Health Sciences and one from outside the Department, will serve on an advisory committee with the project director and also act as readers of the thesis. A formal thesis will be submitted and publicly presented at the project's conclusion. A student must make a B or higher in the honors thesis to get honor recognition on their transcript.

D. **Specific Honors-Enriched Course Requirements**

In each of the honors-enriched courses listed under C. 1. in addition to the above mentioned course curricula, an honors student will meet with the instructor to determine a topic and sign a contract agreeing to carry out one or more of the enrichment experiences listed below. The program coordinator will keep the contract on file.

1. Research a topic for weekly discussions with the instructor;
2. An oral presentation on selected topics/research papers;
3. Prepare an extensive critiques on several peer reviewed research articles;
4. Extension of laboratory experiment(s) for further study;
5. A book reading;
6. A study on a special topic followed by an exam;
7. An internship; and
8. Any other component decided by the instructor.