Professional Science

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The College of Basic and Applied Sciences offers the Master of Science with a major in Professional Science (M.S.) with three concentrations: Biostatistics, Biotechnology, and Health Care Informatics. See departmental listings in this catalog for complete course descriptions.

Requirements for the Master of Science—Professional Science Major

Once accepted into the College of Graduate Studies, students interested in the Master of Science in Professional Science program may enroll for one semester before being fully admitted to the program.

Candidate must
1. complete a minimum of 36 semester hours of graduate credit. This includes 15 hours of the following core courses that are required for all three concentrations—Biostatistics, Biotechnology, and Health Care Informatics.

   **Core Courses**
   - BCEN 6820 Managerial Communication, 3 hours
   - MGMT 6740 Leadership and Motivation, 3 hours
   - ACTG 6100 Accounting and Legal Issues for Managers, 3 hours
   - STAT 5140 Probabilistic and Statistical Reasoning, 3 hours
   - BCEN 6910 Internship Program, 3 hours

2. file a degree plan with the Graduate Office prior to the completion of 21 credit hours.

Application Process

All applicants to the Master of Science in Professional Science degree program must formally apply to the College of Graduate Studies as degree-seeking students. A complete application package consists of the graduate application, application fee, official transcripts from all collegiate institutions attended, three letters of reference, and an official Graduate Record Examination (GRE) report. A composite GRE score of 900 is expected for consideration for unconditional admission. Also, the applicant must have the appropriate undergraduate preparation for the area of concentration.

General Admission Requirements

General admission requirements include basic competency in word processing, electronic mail, library retrieval systems, presentation graphics, spreadsheets, and databases, and completion of a basic applied statistics course (STAT 5130 or the equivalent) with a grade of C (2.00) or better.

Concentration in Biostatistics

For admission to the Biostatistics concentration, candidates are expected to have completed a course in multivariate calculus with a grade of C (2.00) or better (MATH 3110 or the equivalent) and a course in linear algebra with a grade of C (2.00) or better (MATH 2010 or the equivalent).

In addition to the 15 hours of core courses, the Biostatistics concentration requires 21 hours from the following courses:

   **Required**
   - STAT 6020 Introduction to Biostatistics, 3 hours
   - STAT 6160 Statistics, 3 hours
   - STAT 6180 Statistical Inference, 3 hours
   - STAT 6510 Biostatistical Methods, 3 hours
   - STAT 6520 Advanced Biostatistical Methods, 3 hours

   **Six hours from the following:**
   - STAT 6602 Problems in Statistics, Regression Analysis, 1-4 hours
   - STAT 6603 Problems in Statistics, Nonparametric Statistics, 1-4 hours
   - STAT 6604 Problems in Statistics, Experimental Design, 1-4 hours

Concentration in Biotechnology

For admission to the Biotechnology concentration, candidates must possess an undergraduate degree with a major in biology or chemistry or another major and must have taken organic chemistry and at least three undergraduate courses related to biotechnology, including genetics.

In addition to the 15 hours of core courses, the Biotechnology concentration requires 21 hours from the following courses:

   **Required**
   - BIOL 5550 Biotechnology, 3 hours
   - BIOL 6770 Issues in Biotechnology, 2 hours

   **16 hours to be selected from the following:**
   - BIOL 5460/5461 Human Genetics/Lab, 3 hours
   - BIOL 5510 Food/Industrial Microbiology, 4 hours
   - BIOL 6350/6351 Biostatistical Analysis/Lab, 4 hours
   - BIOL 6380/6381 Experimental Immunology/Lab, 4 hours
   - BIOL 6390/6391 Advanced Cell and Molecular Biology/Lab, 4 hours
   - BIOL 6410 Advanced Transmitting Electron Microscopy, 4 hours
   - BIOL 6430 Clinical and Pathogenic Microbiology, 4 hours
   - BIOL 6440 Advanced Virology, 4 hours
   - BIOL 6450 Advancements in Molecular Genetics, 4 hours
   - BIOL 6500 Special Problems in Biology, 4 hours
   - BIOL 6590 Environmental Toxicology, 4 hours
   - BIOL 6650 Seminar, 1 hour
   - BIOL 6660 Seminar, 2 hours
   - BIOL 6720/6721 Advanced Animal Development/Lab, 4 hours
   - BIOL 6730 Advanced Microbial Physiology and Biochemistry, 4 hours
   - BIOL 6750 Advanced Plant Biotechnology, 4 hours
   - BIOL 6760 Bioinformatics, 4 hours
   - CHEM 6510 Biochemistry II, 3 hours
   - CHEM 6530 Biochemical Techniques, 2 hours
Concentration in Health Care Informatics
Candidates should possess an undergraduate degree with a major in health care or work experience in a health-related field. Applicants without a relevant degree or work experience may be admitted but may be required to complete appropriate prerequisite assignments.

In addition to the 15 hours of core courses, the Health Care Informatics concentration requires 21 hours from the following courses:

- NURS 6400 Introduction to the Clinical Health Care Environment, 2 hours
- NURS 6401 Informatics and Information Management, 3 hours
- NURS 6402 Health Care Information Systems, 3 hours
- NURS 6403 Analysis and Design of Health Care Information Systems, 3 hours
- NURS 6404 Evaluation of Health Care Information Systems, 3 hours
- NURS 6405 Health Care Data Analysis Techniques, 3 hours
- NURS 6407 Informatics Applications Practicum I, 2 hours
- NURS 6409 Informatics Applications Practicum I, 2 hours