BIOMEDICAL INFORMATICS

Biomedical Informatics is a new way of learning biology by bridging the gap between computer science and life sciences to truly make a difference in the medical field. With this degree, you'll be on the inquisitive edge of solving problems fundamental to the understanding of life. As you combine forces with math, chemistry, biology, information technology and beyond, your future will be limitless because you'll be the one building the tools to get there. All you need is the passion for improving human health and the rarity to learn the newest technology available. We encourage you to let your curiosity get the better of you – we think it's the fundamental catalyst to solving medicine's biggest problems

BIOMEDICAL INFORMATICS AT IS&T

Your education won't stop with an undergraduate degree. At IS&T, students can also earn M.S. and Ph.D. degrees in Biomedical Informatics with specializations in Health or Clinical Informatics, Bioinformatics, and Public Health Informatics. As the field continues to rapidly expand, employment opportunities with a vast amount of industries, research and government institutions, and universities around the globe are yours for the taking.

In a vast and complex field, we offer experiences not only in research labs but with service-oriented efforts with K-12 students, underrepresented groups, industry professionals, and more. In IS&T's backyard we have the Nebraska Medical Center, a top-ranking medical university that we collaborate with routinely, rounding out your experiences with our degree.

JOB OUTLOOK

In a world built on ambiguity, our program gives you the tools essential to feed your curiosity and conquer this developing field. Our state-of-the-art research laboratories and facilities create a collaborative environment where you'll build your education. IS&T works directly with federally funded research projects that will give you hands-on experiences from the moment you walk into our college. Our ground-breaking educational model will provide you with an interdisciplinary learning atmosphere you won't find anywhere else.

Example Job Titles

- Biomedical Informatics Scientist
- Clinical Data Analyst
- Biomedical Software Developer
- Research Associate
- Project Manager
- Chief Medical Information Officer

WHY A GRADUATE DEGREE AT IS&T

Master's education is the fastest-growing and largest segment of graduate education. Many students and professionals recognize that in order to be competitive in the marketplace, additional skills and education are necessary. They are right.

According to the U.S. Bureau of Labor Statistics, employment in occupations that typically require a master's degree will increase by 18 percent between 2008 and 2018, and the potential income gain from achieving a master's degree is substantial. On average, employers will pay 15 percent more to those who hold a master's degree than those with a bachelor's degree. Master's degrees are key to future employment and career advancement.

Benefits

- Advance your career
- Gain credentials
- Hone professional skills
- Earn a higher salary (15 percent more than someone with a bachelor's degree)
- Change careers
- Increase leadership abilities

Programs Offered

- MS Biomedical Informatics
- PhD Biomedical Informatics

CURRICULUM

The Master of Science in Biomedical Informatics requires completion of a minimum **36 credit hours** which include the following:

Science Foundation Courses
- BIOL 2140 - Genetics
- BIOL 2740 - Human Physiology and Anatomy I
- BIOL 2840 - Human Physiology and Anatomy II
- BIOL 3020 - Molecular Biology of the Cell
- CIST 2500 - Intro to Applied Statistics for IS&T

Information Technology Foundation Courses
- CSCI 1200/04 - Computer Science Principles/Lab
- CIST 1400 - Intro to Computer Science I
- CSCI 1620 - Intro to Computer Science II
- CIST 2500 - Intro to Applied Statistics for IS&T
- CSCI 3320 - Data Structures
- CSCI 8010 - Foundations of Computer Science

Core Courses (12 hours)
- BMI 8100 - Intro. to Biomedical Informatics
- BMI 8300 - Public Health Genomics
- ISQA 8060 - Research in MIS
- ISQA 8156 - Advanced Statistical Methods

Elective Core Courses (6 hours)
- BMI 8866 - Bioinformatics Algorithms
- CSCI 8050 - Algorithm Graph Theory
- CSCI 8156 - Graph Theory & Applications
- CSCI 8456 - Intro to Artificial Intelligence
- ISQA 8106 - Information Systems Architecture & Organization
- ISQA 8220 - Advanced Systems Analysis & Design
- ISQA 8410 - Data Management

Research Electives (6 hours)
- BIOI 8850 - Special Topics in BIOI
- BMI 8020 - Advanced Course in BIOI
- ISQA 8160 - Applied Distribution Free Statistics
- ISQA 8340 - Applied Regression Analysis
- ISQA 9120 - Applied Experimental Design & Analysis

Bioinformatics Track Electives (6 hours)
- BIOL 8136 - Molecular Genetics
- BMI 8080 - Seminar in Biomedical Informatics
- BMI 8850 - Biomedicine for Non-medical Professionals
- BMI 8896 - Genetic Sequence Analysis
- BMI 8900 - Independent Research in BMI
- BMI 8970 - Independent Study in BMI
- CSCI 8340 - Data Base Management Systems II
- CSCI 8876 - Data Search & Pattern Discovery in BIOI
- ISQA 8460 - Iot, Big Data, and the Cloud
- ISQA 8750 - Interactive Data Visualization

Health Informatics Track Electives (6 hours)
- BIOL 8136 - Molecular Genetics
- BMI 8080 - Seminar in Biomedical Informatics
- BMI 8850 - Biomedicine for Non-medical Professionals
- BMI 8896 - Genetic Sequence Analysis
- BMI 8900 - Independent Research in BMI
- BMI 8970 - Independent Study in BMI
- CSCI 8340 - Data Base Management Systems II
- CSCI 8876 - Data Search & Pattern Discovery in BIOI
- ISQA 8460 - IoT, Big Data, and the Cloud
- ISQA 8750 - Interactive Data Visualization

Exit Requirements (6 hours)
- BMI 8990 - Thesis