**WHAT IS BIOMEDICAL INFORMATICS?**

* Informatics is the science of information. Biomedical Informatics deals with the study of rapidly growing biomedical databases and their role in medical diagnosis, patient care, and biomedical research.
* City Tech’s Biomedical Informatics program is an interdisciplinary major, formed by the intersection of biological sciences, healthcare, computing, and computer systems.
* The need for graduates is growing faster than many technology fields, according to recent government projections.

**WHAT CAN YOU DO WITH A BS DEGREE IN BIOMEDICAL INFORMATICS?**

**ABOUT CITY TECH**

New York City College of Technology is the senior college of technology of The City University of New York. Founded in 1946, the college is home to more than 16,000 students, pursuing a variety of technology-intensive degrees in applied science, engineering technology, design and management, and healthcare and human services. City Tech is located in downtown Brooklyn, at the heart of Metro Tech Center, a vibrant center for urban education and business.

* Graduates can work in:
  + hospitals and clinics
  + biotech and health informatics companies
  + pharmaceutical companies
  + public health organizations
  + research institutes
* Graduates can become:
  + bioinformaticians
  + health information technicians
  + clinical data & software specialists
  + health record specialists and systems analysts
  + research technicians
* Graduates can pursue advanced degrees in
  + medical school
  + healthcare professions
  + masters and doctoral programs

**PROGRAM HIGHLIGHTS**

* City Tech is the only college to offer this degree in the City University of New York system.
* City Tech is among the first in the nation to offer a truly integrated Biomedical Informatics degree at the bachelors level.
* BS program provides:
  + education in advanced biology and biomedical science
  + experience with computer systems and applied math techniques
  + knowledge of healthcare data systems and management
  + training in bioinformatics and medical informatics
* Pre-Med option is possible with a well-planned sequence of courses.

http://gtexchange.org/images/CityTechCUNY_Logo.jpg

*Modified by DS, Mar 2015*

**BACHELOR OF SCIENCE**

**IN**

**BIOMEDICAL INFORMATICS**

***BIOLOGICAL SCIENCES DEPARTMENT***

***CITY TECH, CUNY***

**DEGREE REQUIREMENTS**

**(with CUNY PATHWAYS)**





***FOR STUDENTS ENTERING***

***IN or AFTER FALL 2014***

**FOR MORE INFORMATION, CONTACT:**

Dr. Davida S. Smyth, *Program Coordinator*

Biological Sciences Department

P-410, New York City College of Technology

300 Jay Street, Brooklyn, NY 11201

Email: [DSmyth@citytech.cuny.edu](mailto:ASolis@citytech.cuny.edu)

**COURSE REQUIREMENTS**

**I. Pathways Gen Ed Courses**

**These requirements apply to students who enter City Tech in or after Fall 2014**; continuing students enrolled before Fall 2014 must follow another set of Gen Ed requirements (listed in either the green or the yellow brochure). Please consult with BIB advisor to discuss your specific Gen Ed requirements.

**Required Core (recommended courses)†**

|  |  |  |
| --- | --- | --- |
| English Composition I | ENG 1101 | 3 |
| English Composition II | ENG 1121 | 3 |
| Math and Quant Reasoning | MAT 1475**†** | 3/4 |
| Life/Physical Sciences  *rec*: Biology I | BIO 1101**†** | 3/4 |

**Flexible Core (recommended courses)†**

|  |  |  |
| --- | --- | --- |
| World Cultures/Global Issues | any | 3 |
| US Experience in its Diversity | any | 3 |
| Creative Expression | any | 3 |
| Individual and Society | any | 3 |
| Scientific World  *rec*: Biology II | BIO 1201**†** | 3/4 |
| One additional Flex Core  *rec*: Anatomy & Physiology I | BIO 2311**†** | 3/4 |

**College Option (recommended courses)†**

|  |  |  |
| --- | --- | --- |
| Speech/Oral Communication | any | 3 |
| Interdisciplinary LAS course | any | 3 |
| LAS course  *rec*: Statistics with Probability  or Probability & Math Stats | MAT 1372**†**  MAT 2572**†** | 3/4 |
| Upper level LAS course  *rec*: Anatomy & Physiology II | BIO 2312**†** | 3/4 |

**†Students are strongly urged to fulfill their CUNY Pathways General Education requirements using these “double-duty” courses that also fulfill degree requirements.**

**II. BIO and Molecular Bioinformatics Courses**

|  |  |  |
| --- | --- | --- |
| BIO 1101 | Biology I | 4 |
| BIO 1201 | Biology II | 4 |
| BIO 2311 | Anatomy and Physiology I | 4 |
| BIO 2312 | Anatomy and Physiology II | 4 |
| BIO 3526 | Pathophysiology | 3 |
| BIO 3620 | Molecular and Cell Biology | 4 |
| BIO 3350 | Bioinformatics I | 4 |
| BIO 3352 | Bioinformatics II | 4 |
| BIO 3354 | Computational Genomics | 3 |
| BIO 3356 | Molecular Modeling in Bio | 3 |

**III. Computer and Healthcare Informatics Courses**

|  |  |  |
| --- | --- | --- |
| CST 1101 | Problem Solving with Computer Programming | 3 |
| CST 1201 *or* 2403 | Programming Fundamentals  *or* Intro C++ Programming | 3 |
| CST 1204 | Database Syst Fundamentals | 3 |
| MED 2400 | Medical Informatics Fundamentals | 3 |
| MED 4229 | Healthcare Databases | 3 |
| HSA 3510 | Health Services Mgmt I | 3 |

**IV. Internship/Research Course**

|  |  |  |
| --- | --- | --- |
| MED 3910 | Internship/Research in Biomedical Informatics | 5 |

**V. Additional Required Courses**

|  |  |  |
| --- | --- | --- |
| MAT 1475 | Calculus I | 4 |
| MAT 1372/  MAT 2572 | Statistics with Probability *or* Probability & Math Stats | 3/4 |
| PHIL 2203 | Health Care Ethics | 3 |

**VI. Electives**

**Choose courses from the following list to bring total credits to 120.** The choice of electives, to be made in close consultation with the Program Coordinator or Academic Advisor, should ideally reflect the student’s interests, post-baccalaureate study plans, and career goals.

**Science and Health Professions Elective Area**

Microbiology, BIO 3302 – 4 credits

Biochemistry, BIO 3601 – 4

Nutrition, BIO 3524 – 2

General Chemistry I, CHEM 1110 – 4

General Chemistry II, CHEM 1210 – 4

Organic Chemistry I, CHEM 2223 – 5

Organic Chemistry II, CHEM 2323 – 5

Physics 1.3, PHYS 1441 – 5

Physics 2.3, PHYS 1442 – 5

Health Services Management II, HSA 3602 – 3

Legal Aspects of Health Care, HSA 3560 – 3

Health Care Finance & Acct. Mgmt. HSA 3630 – 3

Intro to Public Health Admin. HSA 4910 – 3

**Computation and Computer Systems Elective Area**

Operating Systems Fundamentals, CST 1215 – 3

Networking Fundamentals, CST 2307 – 3

Web Programming I, CST 2309 – 3

Intro to Syst Analysis and Design, CST 2406 – 3

Web Programming II, CST 2409 – 3

Computer Security, CST 2410 – 3

C++ Programming Part II, CST 3503 – 3

Design of Microcomp Databases, CST 3504 – 3

Object Oriented Prog in Java, CST 3513 – 3

Object Oriented Programming, CST 3603 – 3

Design of Distributed Databases, CST 3604 – 3

Calculus II, MAT 1575 – 4

Discrete Structures & Algorithms I, MAT 2440– 3

Discrete Structures & Algorithms II, MAT 2540 – 3

Introduction to Linear Algebra, MAT 2580 – 3

Calculus III, MAT 2675 – 4

Differential Equations, MAT 2680 – 3

Probability and Math Statistics II, MAT 3672 – 4

Stochastic Models, MAT 3772 – 3

Probability and Math Statistics III, MAT 4872 – 4

|  |
| --- |
| **PRE-MED OPTION:** Students must use elective credits to complete the following courses required by most medical schools:  CHEM 1110, CHEM 1210, CHEM 2223,  BIO 3601 or CHEM 2323, PHYS 1441, PHYS 1442 |