New York City College of Technology, CUNY

CURRICULUM MODIFICATION PROPOSAL FORM

This form is used for all curriculum modification proposals. See the [Proposal Classification Chart](http://www.300jaystreet.com/college-council/resources/2010/04/2013-10-09-Proposal_Classification_Chart.docx) for information about what types of modifications are major or minor. Completed proposals should be emailed to the Curriculum Committee chair.

|  |  |
| --- | --- |
| **Title of Proposal** | **Biomedical Informatics Program Curriculum Changes** |
| **Date** | **February 10, 2016** |
| **Major or Minor** | **Major** |
| **Proposer’s Name** | **Joanne Weinreb** |
| **Department** | **Biological Sciences Department** |
| **Date of Departmental Meeting in which proposal was approved** | **2/11/2016** |
| **Department Chair Name** | **Prof. Laina Karthikeyan** |
| **Department Chair Signature and Date** |  |
| **Academic Dean Name** | **Dean Justin Vazquez-Poritz** |
| **Academic Dean Signature and Date** |  |
| **Brief Description of Proposal**  (Describe the modifications contained within this proposal in a succinct summary. More detailed content will be provided in the proposal body.) | **Following changes are proposed for the Biomedical Informatics Program:**   * **Modifying entrance and transfer requirements** * **Introducing a “good standing” criteria** * **Add admission criteria into the catalog** |
| **Brief Rationale for Proposal**  (Provide a concise summary of why this proposed change is important to the department. More detailed content will be provided in the proposal body.) | **Modifying the entrance and transfer requirements for the Biomedical Informatics Program and introducing “good standing” criteria for students enrolled in the program. These changes will ensure that future admissions to the program will be capable of handling the rigor and high standards that we hope to accomplish for our graduates, ensuring that they are ready and competitive for the workplace or graduate school.** |
| **Proposal History**  (Please provide history of this proposal: is this a resubmission? An updated version? This may most easily be expressed as a list.) | **This proposal constitutes a first submission.** |

Please include all appropriate documentation as indicated in the Curriculum Modification Checklist.

For each new course, please also complete the New Course Proposal and submit in this document.

Please submit this document as a single .doc or .rtf format. If some documents are unable to be converted to .doc, then please provide all documents archived into a single .zip file.

**ALL PROPOSAL CHECK LIST**

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| Completed CURRICULUM MODIFICATION FORM including: |  |
| * Brief description of proposal | √ |
| * Rationale for proposal | √ |
| * Date of department meeting approving the modification | √ |
| * Chair’s Signature | √ |
| * Dean’s Signature | √ |
| Evidence of consultation with affected departments  List of the programs that use this course as required or elective, and courses that use this as a prerequisite. | √  N/A |
| Documentation of Advisory Commission views (if applicable). | N/A |
| Completed [Chancellor’s Report Form](http://www.300jaystreet.com/college-council/resources/2010/04/2013-10-09-Chancellor_Report_Quick_Reference_Guide.doc). | √ |

**EXISTING PROGRAM MODIFICATION PROPOSALS**

|  |  |
| --- | --- |
| Documentation indicating core curriculum requirements have been met for new programs/options or program changes. | N/A |
| Detailed rationale for each modification (this includes minor modifications) | √ |

**Date of Department Meeting Approving the Modification:** February 11, 2016

**Brief Description of Proposal**

The following document describes several amendments being proposed by the Department of Biological Sciences to the Biomedical Informatics Program. The current changes are more fundamental, addressing the entrance and transfer requirements for the program as well as the introduction of good standing criteria. These changes will ensure that future admissions to the program will be capable of handling the rigor and high standards, that we hope to accomplish for our graduates ensuring that they are ready and competitive for the workplace or graduate school.

The proposed changes to the Biomedical Informatics Curriculum are:

1. To modify the entrance requirements.
2. To modify the transfer requirements.
3. To introduce a “good standing” metric.
4. To add admission criteria into the college catalog.

**Rationale for Proposal**

**II. Changes to the Biomedical Informatics Curriculum**

***To modify the entrance requirements***

As it is difficult to assess whether or not students entering the program as freshmen will be affected by any changes to the program in its current form, we are only proposing that all students be required to demonstrate CUNY proficiency in reading, writing and mathematics, the standard requirement for all bachelors programs at City Tech. For example, the Bachelor of Science in Professional and Technical Writing of the English department, requires the students to have a high-school average of 75 and demonstrate CUNY proficiency in reading, writing and mathematics.

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| --- | --- |
| Current entrance requirements | Proposed entrance requirements |
| * Minimum high school average of 75. * Proficiency as achieved by any one of the following criteria:   + Minimum SAT score of 1000 (500 Writing, 500 Math);   + Minimum NYS Regents exam score of 75 in English and 80 in at least one of the three Math sections (Integrated Algebra; Geometry; or Algebra 2 and Trigonometry) or CUNY Placement exam, with minimum score 70 in Reading, 56 in Writing, ~~and 45 in both M1 and M2 Math~~. * One year high school Biology or Chemistry. * Must have 3 units of high school math (should prepare them to enter MAT1275 or higher). | * Minimum high school average of 75. * Proficiency as achieved by one of the following criteria:   + Minimum SAT score of 1000 (500 Writing, 500 Math);   + Minimum NYS Regents exam score of 75 in English and 80 in at least one of the three Math sections (Integrated Algebra; Geometry; or Algebra 2 and Trigonometry) or CUNY Placement exam, with minimum score 70 in Reading**,** and56 in Writing. * One year high school Biology or Chemistry. * Must be eligible to enter MAT1375 or higher. |

***To modify the continuing and transfer requirements***

The proposed changes to the transfer requirements include the elevation of the GPA to a 2.5, completion of MAT 1275 with a grade of C or better, and completion of BIO 1101 or an equivalent with a grade of C or better. The department recognizes the need to ensure that students maintain a sufficient GPA, to enable them to apply to prestigious internship programs, to apply to graduate school and various health care professional programs, such as medical school and to be competitive in the job market. Existing programs at the college including the Bachelor of Science in Professional and Technical Writing and the Bachelor of Science in Education in Technology Teacher Education, both require a minimum grade point average of 2.5 for transfer.

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| Current transfer requirements | Proposed transfer requirements |
| * Must be CUNY proficient. * Must have minimum cumulative GPA of 2.0. * Must have completed one semester of college level English with a grade of C or better. * Must complete one semester of college level Math with a grade of C or better. | * Must be CUNY proficient. * Must have minimum cumulative GPA of 2.5. \* * Must have completed one semester of college level English with a grade of C or better. * Must have completed MAT 1275 or an equivalent or higher with a grade of C or better or place into MAT1375 or higher. * Must have completed BIO 1101 or an equivalent with a grade of C or better. |

\* Exceptions can be made, if given permission by the the Departmental Chair.

Several programs require a GPA of 2.5 or above for admission.

* Nursing, for example, requires that students meet an overall 2.5 grade point average to be admitted to the first semester nursing courses.
* For the Bachelor of Science in Health Services Administration, students must have a minimum GPA of 2.5.
* For the Bachelor of Science in Education, in Technology Teacher Education, transferring students must have a minimum cumulative grade point average of 2.5.

For the Bachelor of Science in Radiological Science, a 2.7 cumulative grade point average is required, to be admitted into the clinical phase of the program.

***To add a “good standing” metric***

Currently the program does not describe criteria for good standing. The department, however, recognizes the need to ensure that students maintain a sufficient GPA to enable them to apply to prestigious internship programs (see table below), to apply to graduate schools and various health care professional programs, such as medical school, and finally to be competitive in the job market.

|  |  |
| --- | --- |
| Internship Program | GPA Requirement |
| SULI Brookhaven | 3.0 |
| CSHL | 3.5 |
| Sloan Kettering | 3.0 |
| Mount Sinai | 3.5 |
| Princeton PSURE | 3.5 |
| Rutgers | 3.0 |
| NYU Sackler | 3.4 |
| Brooklyn College REU | 3.3 |
| HRTP | 3 |
| Columbia | 2.7 |
| Columbia SPURS | 3.0 |
| Cornell SAP | 3.0 |
| Hunter College | 3.0 |

Several programs do implement “good standing” criteria for progression.

* Nursing, for example, requires that students maintain a 2.5 cumulative grade point average and students achieve a grade of “C” in all Nursing courses (NUR) and required courses in the curriculum. Additionally, a Nursing student may repeat only one of the required Nursing courses. Courses designated NUR must be passed on the second registration. The Nursing department also mandates that a grade of satisfactory (S) in the clinical component of Nursing courses (NUR 3010, NUR3110, NUR 4010, NUR 4110) is required for passing the course and that only one withdrawal for academic reasons “W” from required nursing courses is permitted.
* The Human Services BS degree program stipulates that a minimum grade of “C” in each course with the prefix HUS and HEA is required within the Human Services curriculum. A student who has earned a grade lower than “C” in any HUS or HEA course must contact the Chairperson, in order to repeat that course. For all other courses the student must contact the Registrar to obtain permission to repeat a course. A course may only be repeated once. Please note that a minimum grade point average of 2.0 is required both for progression within the Human Services curriculum and for enrollment in a field practicum course. Students who fall below a 2.0 grade point average are required to arrange a meeting with a Human Services Department faculty advisor, to discuss plans to improve their academic standing.
* For the Bachelor of Science in Health Services Administration, students must receive a minimum grade of “C” in each course designated with the prefix HSA. No HSA course may be repeated more than once. No more than two HSA courses may be repeated during the entire course of study. Students must show progression (i.e. maintaining a 2.5 GPA, with no multiple W, WF or WU grades in any courses).
* For the Bachelor of Science in Education, in Technology Teacher Education, students must receive a grade of “B” or better in each course taken in the major. They must maintain a minimum cumulative grade point average of 2.5 in order to continue in the program beyond 12 credits and to enroll in student teaching. Student teaching is required for program completion and a college recommendation for New York State certification. A minimum grade point average of 2.7 is required for graduation.
* For the Bachelor of Science in Radiological Science, a 2.5 cumulative grade point average must be maintained. Students must achieve a minimum grade of “C” in all (RAD) courses and required courses in the curriculum.

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| Current good-standing metric | Proposed good-standing metric |
| None | * Student must maintain a cumulative GPA of 2.5 * Student must achieve a grade C or better, in all required courses in the major. \* * Student can only repeat a required course once\*\* |

\*The Biomedical Informatics BS degree program stipulates student must achieve a grade of “C” or better, in each course in the major. A student who has earned a grade lower than “C” in any course in the major must contact the Chairperson, in order to repeat that course. For all other courses the student must contact the Registrar to obtain permission to repeat a course. A course may only be repeated once. Please note that a minimum grade point average of 2.5 is required both for progression within the Biomedical Informatics curriculum. Students who fall below a 2.5 grade point average are required to arrange a meeting with the Department Chairperson, to discuss plans to improve their academic standing.

\*\* In the case of exceptional circumstances (family bereavement, illness), a student could be allowed to repeat the course, if given permission by the Departmental Chair.

Data were collected about students for the previous three semesters, tracking the GPA in Spring 2014, Fall 2014, and Spring 2015 (Fall 2015 data were not available yet). We wanted to track how students were faring within the program. The following graph shows the information of the 326 students for whom data were available across more than one semester. They were placed into one of four bins: GPA < 2.0, GPA >= 2.0 and less than 2.5, GPA >= 2.5 and less than 3, and lastly those with a GPA of 3.0 or greater. The blue bar indicates the GPA at the beginning of the timeframe, and the red bar shows the GPA at the end of the time span. What can be deciphered is that there is very little change in the GPA of the attending students. Thus, students who are weak to begin with remain weak, and those students who are strong remain strong.

The department recognizes that implementing such a change could impact the students in the program. The department is committed to ensuring that all students have opportunities to excel in the program and is actively seeking ways to improve tutoring and advisement, and has even implemented a Peer- Led Team Learning program for Biology subjects.

***To add admission criteria to the college catalog.***

The proposed changes to the entry and transfer requirements should be formalized as admission criteria in the college catalog. Currently, there is nothing listed in the catalog as admission criteria.

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| --- | --- |
| Current admission criteria | Proposed admission criteria into the Biomedical Informatics Program |
| * None | Entrance requirements:   * Minimum high school average of 75. * Proficiency as achieved by one of the following criteria:   + CUNY Placement exam, with minimum score 70 in Reading, 56 in Writing * One year of high school Biology or Chemistry * Eligibility to enter MAT 1375 or higher.   Transfer requirements:   * Must be CUNY proficient. * Must have minimum cumulative GPA of 2.5. \* * Must have completed one semester of college level English with a grade of C or better. * Must have completed MAT 1275 or higher with a grade of C or better or place into MAT1375 or higher. * Must have completed BIO 1101 or an equivalent with a grade of C or better.   Both entrance and transfer students must be granted permission by the Department Chair. |

\* Exceptions can be made if given permission by the Departmental Chair.

**Evidence of Consultation with Affected Departments**

**Departmental meeting minutes**

NEW YORK CITY COLLEGE OF TECHNOLOGY CITY UNIVERSITY OF NEW YORK

BIOLOGICAL SCIENCES DEPARTMENT FACULTY MEETING

February 11, 2016

P413

Meeting Minutes

Present: Profs. [Ralph R. Alcendor,](http://www.citytech.cuny.edu/academics/deptsites/biological/faculty.aspx#2)  Nathan Astrof, [Dennis Bakewicz,](http://www.citytech.cuny.edu/academics/deptsites/biological/faculty.aspx#4) Chris Blair, Mercer Brugler, [Isaac Barjis,](http://www.citytech.cuny.edu/academics/deptsites/biological/faculty.aspx#5) [Sanjoy Chakraborty,](http://www.citytech.cuny.edu/academics/deptsites/biological/faculty.aspx#6) [Rena Dabydeen,](http://www.citytech.cuny.edu/academics/deptsites/biological/faculty.aspx#8) Evgenia Giannopoulou, [Niloufar Haque,](http://www.citytech.cuny.edu/academics/deptsites/biological/faculty.aspx#10) Laina Karthikeyan, [Vasily Kolchenko](http://www.citytech.cuny.edu/academics/deptsites/biological/faculty.aspx#12), Zongmi Li, Debbie Priftakis, [Jeremy Seto,](http://www.citytech.cuny.edu/academics/deptsites/biological/faculty.aspx#19) Ayisha Sookdeo, [Olufemi Sodeinde,](http://www.citytech.cuny.edu/academics/deptsites/biological/faculty.aspx#20) Armando Solis, [Liana Tsenova,](http://www.citytech.cuny.edu/academics/deptsites/biological/faculty.aspx#16)  Tatiana Voza, Joanne Weinreb, Mai Zahran, Andleeb Zameer

Ms. Natasha Campusano, Dr. Angelika Brekman, Nina Cheprasova

Absentees: Walied Samarrai, Jacqueline Elliot, Monique Breeland and Ms. Rita Rudsky

Presider: Prof. [Laina Karthikeyan, Chair](http://www.citytech.cuny.edu/academics/deptsites/biological/faculty.aspx#11)

The meeting began at 1:01 pm.

**1. Call to order and approval of minutes of meeting**

**Minutes of the meeting of December 3, 2015 were approved.**

**2. Discussion and Announcements (Program Review, site visit)**

**Prof. Karthikeyan congratulated Prof. Voza for attaining tenure.**

Prof. Karthikeyan announced that by early April, Dr. Monica Devanas will be visiting our department for our program review, as the External Evaluator. It will be a whole day’s activities. She will be meeting with all personnel of the department (full and part time faculty and CLTs, staff etc.). Dr. Devanas will be meeting separately with the Chair and members of the administration, President Hotzler, Provost August, AP Brown and Dean Vazquez.

Prof. Karthikeyan said she needs input to the planned activities for the visit and that she will send a tentative template to the department to be edited/reviewed. She suggested that we showcase some of our faculty research and the students also present their research. All syllabi should be updated so that they are ready for Dr. Devanas for review, if needed.

She mentioned that based on the Evaluator’s report, we will develop a strategic plan for the next few years.

Prof. Karthikeyan spoke about the impending visit by Dr. J. Broomberg, the Interim Dean of Sciences at the Graduate Center on February 18. He first will meet with the President and the Chairs and then he will tour our department, accompanied by Dean Vazquez from 10.30 am-10.50am. Members wanted to know what the visit was about and the Chair said that no agenda was provided but said the intention may be to look into our facilities and learn about our program and students.

Prof. Karthikeyan reminded members that Thursday February 18, is also the day for the Dean of School of Arts and Sciences’ (SOAS) general meeting. She noted that it is a good opportunity to showcase the department’s research activities and again asked members to submit information on any activities they are engaged in.

* Prof. Karthikeyan informed members that on February 19, Friday, we will be having the BIB Internship Symposium, where our BIB students will present their research findings, based on their Internship projects.. She invited Prof, Seto to provide more information about the event. Prof. Seto confirmed that a venue had been secured; it is room N817. He said the Symposium will run from 10 am to 4.00 pm. In response to a question about evaluators at the Internship symposium, Prof. Seto said that more evaluators were needed for the oral presentations and mentioned that not all the projects were based on Bioinformatics, so faculty with other expertise in Biology can also judge the written reports. It was also suggested that the evaluators for the Internship presentations be assigned time slots, for ease of execution.
* Dr. Karthikeyan mentioned that she will be reinstating the committee system in spring 2016. She said that faculty members should let her know the preferences for serving in the committee(s).

**3. Goals for the Academic Year**

Prof. Karthikeyan reminded members to start collating their PARSE and to send it to her as soon as possible. She informed that Prof. Tsenova sent her a list of mentors and assigned mentees and Prof. Karthikeyan will assign mentors to some of the junior faculty missing in the list, and e-mail the list to all the faculty members soon.

To enhance the interaction between members of the department, she proposed that once a month perhaps on a Thursday from 5 – 6 pm, we can meet for a social hour and asked the Social/Seminar committee to look into the implementation.

Prof. Karthikeyan suggested that the Evening Coordinator and other Course Coordinators should work to develop a relationship with our adjuncts, including having an effective co-mentoring system. She suggested that the Course Coordinators should review exams set by adjuncts, as it has been brought to her attention, that some are not covering all the topics in the syllabus. Such periodic checking of examinations, is meant to improve instruction and not to be perceived otherwise.

A faculty member suggested that we produce two course outlines; one for students and a more detailed one for instructors.

It was also suggested that grade distributions, be checked to detect discordant patterns. Prof. Voza volunteered to check with the Union, whether some of the steps the department is taking to improve quality of instruction, might violate Union rules.

Dr. Brekman suggested that practical exams be centralized, so that the pressure is taken off the instructors.

Prof. Karthikeyan announced that the department will soon start interviewing for the Molecular Biology, Anatomy & Physiology as well as the CLT positions.

Prof. Karthikeyan finally suggested that we work together to produce a document that will address the problem of teaching standards.

Prof. Karthikeyan told members that the Dean has instructed that all full time and part time faculty be evaluated; that is peer-observed.

**4. Biomedical Informatics Program voting (Major and Minor Curriculum Changes)**

* The discussion moved to the proposed changes for the BIB program, which was approved by the Curriculum Committee of the department.
* Prof. Karthikeyan mentioned that the BIB major and minor curriculum changes would be split into several motions for voting. She also said that the proposed changes would not affect students currently in the program, only those entering the program after the proposal was approved.
* It was noted that changes to entrance requirements is a major and not a minor change.
* Members then voted on the motions.
* The vote on the motion to increase the GPA to 2.5 was unanimous; 21 for, 0 against
* The vote on the motion to modify the entrance and transfer requirements was unanimous; 21 for, 0 against.
* The vote on the motion to introduce a “good standing” metric was unanimous after the suggestion that the third bullet on the proposed good standing metric be changed to “ student can only repeat a required course once”; 21 for, 0 against.
* The vote on the motion to modify the verbiage in the curriculum for elective classes was unanimous; 21 for 0 against.

**5. Good and Welfare**

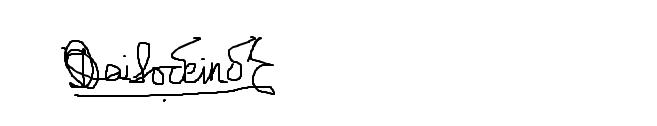
Prof Karthikeyan informed members that the Seminar Series will be revived and requested faculty, especially the new faculty hires to present their research. .

Prof. Tsenova spoke at length about the Bridges to Baccalaureate program. She emphasized that it is supported by an NIH grant of $1.2 million and supports underrepresented students. She spoke about the success achieved so far and the need to recruit 15 new scholars by March 31st, 2016. She thanked members of the department involved in the program, Profs. Voza, Solis, Astrof, Brugler, Zameer, Seto, and Alcendor.

Prof. Tsenova also mentioned a new program that supports research in baccalaureate programs; she mentioned that prior research experience is required of the students.

**6. Adjournment**

The meeting was adjourned at 2:15 pm.



**Olufemi Sodeinde**

**CHANCELLOR’S REPORT FORM**

**Section AIII: Changes in Degree Programs**

**AIII.1. The following revisions are proposed for the Biological Sciences Department**

**Program: Bachelor of Science in Biomedical Informatics**

**Program Code:**

**Effective: Fall 2016**

**A change in entrance and transfer requirements, introducing a “good standing” criteria and add admission criteria into the catalog**

|  |  |
| --- | --- |
| **FROM:** | **TO:** |
| **REQUIRED COURSES IN THE MAJOR Credits**  **General Education Common Core:** 42 credits  **I – Required Core** 1 (4 courses, 12 credits)  English Composition (2 courses, 6 credits)  ENG 1101 English Composition I 3  ENG 1121 English Composition II 3  Mathematical and Quantitative Reasoning **2** 3  Life and Physical Sciences 3  **II – Flexible Core** (6 courses, 18 credits) From the list of approved courses select one course from each of the following areas; no more than two courses may be selected from any discipline.    World Cultures and Global Issues 3  US Experience in its Diversity 3  Creative Expression 3  Individual and Society 3  Scientific World 3  One additional course from any Flexible Core area 3  **III - College Option requirement** (12-13 credits)  One course in speech/ oral communication **3** 3  One interdisciplinary liberal arts and sciences course 3  Two additional liberal arts to reach a minimum total of 42 credits in general education. In meeting their general education requirements overall, students must take at least one advanced liberal arts course **~~4~~** or two sequential courses in a foreign language4. 6  Writing Intensive Requirement  Students at New York City College of Technology must complete two  courses designated WI for the associate level, one from GenEd and  one from the major; and two additional courses designated WI for the  baccalaureate level, one from GenEd and one from the major.  PROGRAM-SPECIFIC DEGREE REQUIREMENTS 76-77 CREDITS  **Biological Sciences and Molecular Informatics 37**  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 3350 Bioinformatics I 4  BIO 3352 Bioinformatics I I 4  BIO 3354 Computational Genomics 3  BIO 3356 Molecular Modeling in Biology 3  BIO 3526 Pathophysiology 3  BIO 3620 Molecular and Cell Biology 4  **Computer and Healthcare Informatics 18**  MED 2400 Medical Informatics Fundamentals 3  MED 4229 Healthcare Databases 3  CST 1101 Problem Solving with Computer Programming 3  CST 1201 Programming Fundamentals  or  CST 2403 C++ Programming I 3  CST 1204 Database Systems Fundamentals 3  HSA 3510 Health Services Management I 3  **Internship/Research Course**  MED 3910 Internship/Research in Biomedical Informatics **5**  **Additional Required Courses 10-11**  ENG 1101 English Composition I Met as Gen Ed  ENG 1121 English Composition II Met as Gen Ed  MAT 1475 Calculus I 5 4  MAT 1372 Statistics with Probability 3 or  MAT 2572 Probability and Mathematical Statistics 4  PHIL 2203 Health Care Ethics 3  **Free Elective Credits** to equal 120 **6**    **Total General Education Common Core credits: 42**  **Total program-specific required and elective credits: 78**  **Total Credits for Degree: 120**  1 Students are strongly urged to consult degree requirements for “double-duty” courses: degree requirements that also meet CUNY Pathways general education requirements in that category.  2 Biomedical Informatics is a STEM degree program, requiring 4 or 5 credit courses in mathematics and science. Students may elect to use their required 4 or 5 credit Math or science courses to meet Common Core requirements in Mathematical and Quantitative Reasoning, Life/ Physical Sciences, or Scientific World.  3Complete lists of liberal arts and sciences courses and advanced liberal arts courses, as well as semester-specific lists of interdisciplinary courses and writing intensive courses, are available online at the City Tech Pathways website.  4Students who have already met this requirement by taking COM 1330 or higher may choose any other liberal arts and science course in its place.  5 Please see department advisor for details.  6 Students who elect to take MAT 1475 without the requisite math background will be required to take MAT 1175, 1275, and /or 1375 in preparation, depending upon initial placement. This will increase the number of required credits for the degree by 4-12.  7 The number of free elective credits will vary depending upon the program-specific courses students use to meet Common Core requirements.  **~~Admissions criteria: none~~**  **Entrance Requirements**   * **Minimum high school average of 75.** * **Proficiency as achieved by any one of the following criteria:**   + **Minimum SAT score of 1000 (500 Writing, 500 Math);**   + **Minimum NYS Regents exam score of 75 in English and 80 in at least one of the three Math sections (Integrated Algebra~~;~~ Geometry; or Algebra 2 and Trigonometry) or CUNY Placement exam, with minimum score 70 in Reading, 56 in Writing~~, and 45 in both M1 and M2 Math.~~** * **One year high school Biology or Chemistry.** * **~~Must have 3 units of high school math (should prepare them to enter MAT1275 or higher).~~**   **Transfer Requirements**   * **Must be CUNY proficient.** * **~~Must have minimum cumulative GPA of 2.0.~~** * **Must have completed one semester of college level English with a grade of C or better.** * **~~Must complete one semester of college level Math with a grade of C or better.~~**   **~~11~~ ~~Good Standing Criteria: None~~** | **REQUIRED COURSES IN THE MAJOR Credits**  **General Education Common Core:** 42 credits  **I – Required Core** 1 (4 courses, 12 credits)  English Composition (2 courses, 6 credits)  ENG 1101 English Composition I 3  ENG 1121 English Composition II 3  Mathematical and Quantitative Reasoning **2** 3  Life and Physical Sciences 3  **II – Flexible Core** (6 courses, 18 credits) From the list of approved courses select one course from each of the following areas; no more than two courses may be selected from any discipline.    World Cultures and Global Issues 3  US Experience in its Diversity 3  Creative Expression 3  Individual and Society 3  Scientific World 3  One additional course from any Flexible Core area 3  **III - College Option requirement** (12-13 credits)  One course in speech/ oral communication  3  One interdisciplinary liberal arts and sciences course 3  Two additional liberal arts to reach a minimum total of 42 credits in general education. In meeting their general education requirements overall, students must take at least one advanced liberal arts course **3** or two sequential courses in a foreign language4. 6  Writing Intensive Requirement  Students at New York City College of Technology must complete two  courses designated WI for the associate level, one from GenEd and  one from the major; and two additional courses designated WI for the  baccalaureate level, one from GenEd and one from the major.  PROGRAM-SPECIFIC DEGREE REQUIREMENTS 76-77 CREDITS  **Biological Sciences and Molecular Informatics 37**  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 3350 Bioinformatics I 4  BIO 3352 Bioinformatics I I 4  BIO 3354 Computational Genomics 3  BIO 3356 Molecular Modeling in Biology 3  BIO 3526 Pathophysiology 3  BIO 3620 Molecular and Cell Biology 4  **Computer and Healthcare Informatics 18**  MED 2400 Medical Informatics Fundamentals 3  MED 4229 Healthcare Databases 3  CST 1101 Problem Solving with Computer Programming 3  CST 1201 Programming Fundamentals  or  CST 2403 C++ Programming I 3  CST 1204 Database Systems Fundamentals 3  HSA 3510 Health Services Management I 3  **Internship/Research Course**  MED 3910 Internship/Research in Biomedical Informatics **5**  **Additional Required Courses 10-11**  ENG 1101 English Composition I Met as Gen Ed  ENG 1121 English Composition II Met as Gen Ed  MAT 1475 Calculus I **5** 4  MAT 1372 Statistics with Probability 3 or  MAT 2572 Probability and Mathematical Statistics 4  PHIL 2203 Health Care Ethics 3  **Free Elective Credits** to equal 120 **6**    **Total General Education Common Core credits: 42**  **Total program-specific required and elective credits: 78**  **Total Credits for Degree: 120**  1 Students are strongly urged to consult degree requirements for “double-duty” courses: degree requirements that also meet CUNY Pathways general education requirements in that category.  2 Biomedical Informatics is a STEM degree program, requiring 4 or 5 credit courses in mathematics and science. Students may elect to use their required 4 or 5 credit Math or science courses to meet Common Core requirements in Mathematical and Quantitative Reasoning, Life/ Physical Sciences, or Scientific World.  3Complete lists of liberal arts and sciences courses and advanced liberal arts courses, as well as semester-specific lists of interdisciplinary courses and writing intensive courses, are available online at the City Tech Pathways website.  4Students who have already met this requirement by taking COM 1330 or higher may choose any other liberal arts and science course in its place.  5 Please see department advisor for details.  6 Students who elect to take MAT 1475 without the requisite math background will be required to take MAT 1175, 1275, and /or 1375 in preparation, depending upon initial placement. This will increase the number of required credits for the degree by 4-12.  7 The number of free elective credits will vary depending upon the program-specific courses students use to meet Common Core requirements.  **Admissions criteria**  **Entrance Requirements**   * **Minimum high school average of 75.** * **Proficiency as achieved by one of the following criteria:**   + **Minimum SAT score of 1000 (500 Writing, 500 Math);**   + **Minimum NYS Regents exam score of 75 in English and 80 in at least one of the three Math sections (Integrated Algebra; Geometry; or Algebra 2 and Trigonometry)**   + **CUNY Placement exam, with minimum score 70 in Reading, 56 in Writing.** * **One year of high school Biology or Chemistry.** * **Must be eligible to enter MAT1375 or higher.**   **Transfer and Continuing Requirements**   * **Must be CUNY proficient.** * **Must have minimum cumulative GPA of 2.5\*** * **Must have completed one semester of college level English with a grade of C or better.** * **Must have completed MAT 1275 or higher with a grade of C or better.** * **Must have completed BIO 1101 or an equivalent with a grade of C or better.**   \* Exceptions can be made if given permission by the Departmental Chair.  **Good Standing Criteria:**  **• Student must maintain a cumulative GPA of 2.5**  **• Student must achieve a C or higher, in all required courses in the major.\***  **• Student can only repeat a required course once\*\***  \*The Biomedical Informatics BS degree program stipulates student must achieve a grade of “C” or better, in each course in the major. A student who has earned a grade lower than “C” in any course in the major must contact the Chairperson, in order to repeat that course. For all other courses the student must contact the Registrar to obtain permission to repeat a course. A course may only be repeated once. Please note that a minimum grade point average of 2.5 is required both for progression within the Biomedical Informatics curriculum. Students who fall below a 2.5 grade point average are required to arrange a meeting with the Department Chairperson, to discuss plans to improve their academic standing.  \*\* In the case of extenuating circumstances (family bereavement, illness), a student could repeat if given permission by the Departmental Chair. |

**Rationale:** Modifying the entrance, transfer requirements for the Biomedical Informatics Program and introducing a “good standing” criteria for students enrolled in the program. These changes will ensure that future admissions to the program will be capable of handling the rigor and high standards that we hope to accomplish for our graduates, ensuring that they are ready and competitive for the workplace or graduate school.