PROGRAM ANNOUNCEMENT COVER PAGE

Date: November 12, 2020

Institution:	New Jersey Institute of Technology
New Program Title:	Biology of Health
Degree Designation:	Master of Science
Programmatic Mission Level for the Institution:	Public Research University; doctoral
Degree Abbreviation:	M.S.
CIP Code and Nomenclature (*if possible*):	26.0102; Biomedical Sciences, General
Campus(es) where the program will be offered:	NJIT main campus, Newark, NJ
Date when program will begin (month and year):	06/2021
Institutions with which articulation agreements will be arranged:	N/A

Is licensure required of program graduates to gain employment? ▫Yes ☑No

Will the institution seek accreditation for this program? ☐Yes ☑No

If yes, list the accrediting organization:

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I. OBJECTIVES

College graduates who are interested in pursuing a career in healthcare often matriculate directly to a professional degree program in the health sciences. In order to support their career goals, however, students are increasingly choosing to pursue additional premedical educational opportunities in the form of post-baccalaureate premedical programs, which are designed to provide graduate-level health sciences and basic biomedical training, and further cultivate students' intellectual development. New Jersey Institute of Technology (NJIT) proposes a Master of Science in Biology of Health, a post-baccalaureate premedical program intended to support students' transition to professional school.

The proposed program will build on the existing strength of NJIT in offering a wide range of foundational biomedical courses at the graduate level, which will enhance the academic records of students, as well as a range of graduate level courses with more specific medical and applied health science content that will broaden the students' outlook and understanding of medical and related professions.

The program will also integrate with NJIT's existing pre-heath advising program, especially the intensive application mentoring that has yielded great success with our undergraduate students (an acceptance rate of 89% over the last eight years). Ten years ago NJIT hired a dedicated pre-health advisor, and four years later created the Pre-Health Program in the Office of the Provost. The Program Director coordinates the activities of self-identified pre-health students, guides them through the application process, and is chair of the Pre-Health Committee. Made up of faculty and staff, the Pre-Health Committee helps the Director coach, interview and evaluate students applying to all health professions, and is the formal entity behind the 'committee letter' of recommendation that most health professional schools prefer to receive. Students in the proposed MS program will engage in this same process.

The classification "post-baccalaureate premedical program" refers to a broad range of graduate certificates and degree programs in the health sciences that serve a growing and increasingly diverse student population seeking careers in healthcare (Andriole & Jeffe, 2011; Andriole et al., 2015; McDougle et al., 2015). The designation "post-baccalaureate" refers to an academic program in which students with a bachelor's degree complete coursework at the graduate level, although some undergraduate coursework may also be included (e.g., in order to satisfy medical school admission criteria).

Post-baccalaureate premedical programs enable applicants to medical and other health professions schools (e.g., dentistry, physical therapy, physician assistant, podiatry, etc.) to complete additional coursework in the foundational sciences, demonstrate the ability to succeed in graduate-level studies, and prepare for national admissions examinations (Andolsek, Buckley, Jackson, Lee, & White, 2014). Locally, this program will help to meet the growing demand for medical education amid scarce supply (AAMC, 2020a), and, more broadly, it will help to address

the nation's increasing physician shortage, which is projected to be between ~ 55,000 and ~140,000 by 2033 (AAMC, 2020b).

Furthermore, post-baccalaureate premedical programs play a key role in helping to increase the number of medical school matriculants from underrepresented minority groups or who are economically or educationally disadvantaged (Andriole & Jeffe, 2011), one of the Association of American Medical College's four primary mission areas (AAMC, 2020c). NJIT has a well-established culture of inclusiveness, serving a high percentage of first-generation college students, and underrepresented ethnic and racial minority students. Building on this diversity and culture of inclusiveness, the expectation is that the proposed program would enhance efforts to increase diversity amongst medical professionals, who in turn are more likely to practice in underserved and minority communities.

II. Evaluation & Learning Outcomes Assessment Plan

All NJIT courses and degree programs are assessed regularly and systematically. The proposed Master of Science in Biology of Health (MSBH) will be assessed in accordance with the institution's existing assessment standards and practices to ensure continual program improvement. Courses required in order to earn the MSBH will be evaluated in accordance with all applicable institutional and department-level academic assessment plan(s) and practices.

Both direct and indirect assessment methods will be used, including systematic analysis of coursework, course evaluations, admission to health professions statistics, student opinion reports, student surveys, and alumni surveys. At the institutional level, the Office of Institutional Effectiveness (OIE) is responsible for assessment oversight at NJIT. The OIE works with individual academic divisions and units in order to assess academic programs on an annual basis in an effective and reliable manner.

The mission of the MSBH is to develop students' skills and knowledge so that they are equipped to pursue admission to medical and other health professions schools. Guided by this mission, the program goals (PGs) are to:

1. Provide instruction in the foundational and evolving biomedical sciences, including anatomy, biochemistry, histology, neuroscience, ethics, and physiology, as well as the application of this knowledge to research. (PG1)
2. Enhance interpersonal and communication skills that result in the effective exchange of information. (PG2)
3. Provide pre-health professional training, including an expectation to demonstrate honesty, integrity, and a commitment to abide by the principles of medical ethics. (PG3)

Assessment of program goals will include, but is not limited to: student performance in courses; enrollment and retention; student and alumni surveys ascertaining professional school

enrollment, employment, and career advancement; and on-time degree completion data. The existing NJIT pre-health program provides an established structure to track student progress before and after completion of the program.

Table 1 lists specific assessment strategies for each program goal.

Students earning a MSBH will also demonstrate proficiency in the proposed program's student learning outcomes (SLOs), comprised of the following:

1. Demonstrate biomedical science knowledge at the graduate level. (SLO1)
2. Develop competencies with statistics, data analysis, and interpretation. (SLO2)
3. Read and critically analyze scientific literature, and articulate its impact on biomedical sciences, medicine, public health, and society. (SLO3)
4. Effectively communicate and present ideas to a variety of audiences. (SLO4)
5. Demonstrate professionalism and technical expertise in the broad areas of observation, function, and social skills as related to effective health professionals. (SLO5)

Table 2 demonstrates the relationship between the program goals and the student learning outcomes.

Table 3 presents the curriculum map and assessment plan for the program's student leaning outcomes.

Table 1. Program Goal Assessment Benchmarks & Targets

	Program Goal (PG)	***Assessment***
PG 1	Provide instruction in the foundational and evolving biomedical sciences, including anatomy, biochemistry, histology, neuroscience, ethics, and physiology, as well as the application of this knowledge to research.	• Student performance in courses • Enrollment and retention data. • Feedback from professional programs students moved on to. • On-time degree completion data. • Enrollment and retention • Student and alumni surveys ascertaining professional school enrollment, employment, and career advancement • Existing NJIT pre-health program tracking of student progress before and after completion of the program. • Tracking acceptance rate into professional health programs • Interviews and evaluations by Pre-Health Committee
PG 2	Enhance interpersonal and communication skills that result in the effective exchange of information.	• Student performance in courses • Interviews and evaluations by Pre-Health Committee
PG 3	Provide pre-health professional training, including an expectation to demonstrate honesty, integrity, and a commitment to abide by the principles of medical ethics.	• Student performance in courses • Interviews and evaluations by Pre-Health Committee

Table 2. Program Goals & Student Learning Outcomes Matrix

		Program Goal (PG)		
		PG1	*PG2*	*PG3*
Student Learning Outcome (SLO)		*Knowledge*	*Communication*	*Professionalism*
SLO1	*Demonstrate biomedical science knowledge at the graduate level. .*	☑	☑	☑
SLO2	*Develop competencies with statistics, data analysis, and interpretation.*	☑	☑	□
SLO3	*Read and critically analyze scientific literature, and articulate its impact on biomedical science, medicine, public health, and society.*	☑	□	☑
SLO4	*Effectively communicate and present ideas to a variety of audiences.*	□	☑	☑
SLO5	*Demonstrate professionalism and technical expertise in the broad areas of observation, function, and social skills as related to effective health professionals.*	☑	□	☑

Table 3. Curriculum Map & Assessment of Student Learning Outcomes

Student Learning Outcome (SLO)		Courses		Assessment
SLO1	*Demonstrate biomedical science knowledge at the graduate level.*	BIOL 650 BIOL 644 BIOL 464 CHEM 673 BIOL 628	Human Anatomy Physiological Mechanisms Endocrinology Biochemistry Cell Biology of Disease	In-class quizzes and exams, literature work assignments and projects, in-class presentations
		Most electives, for example:		
		BIOL 640 26:120:524	Cellular Neurophysiology Cell, Molecular, and Developmental Biology	
SLO2	*Develop competencies with statistics, data analysis, and interpretation.*	BIOL 644 BIOL 646 BIOL 628	Physiological Mechanisms Endocrinology Cell Biology of Disease	In-class quizzes and exams, literature work assignments and projects, in-class presentations
		All neuroscience and many other electives, for example:		
		MATH 615 MATH 654 BIOL 672	Appr to Quantitative Analysis in the Life Sciences Clinical Trials Design and Analysis Computational Systems Biology	
SLO3	*Read and critically analyze scientific literature, and articulate its impact on biomedical sciences, medicine, public health, and society.*	BIOL 644 BIOL 646 CHEM 673 PTC 660	Physiological Mechanisms Endocrinology Biochemistry Medical Ethics	In-class quizzes and exams, literature work assignments and projects, in-class presentations
		Many electives, for example:		
		BIOL 643 BIOL 653	Biology of Addiction Medical Genetics and Genomics	

SLO4	*Effectively communicate and present ideas to a variety of audiences.*	BIOL 644 BIOL 650 BIOL 628	Physiological Mechanisms Human Anatomy Cell Biology of Disease	In-class quizzes and exams, literature work assignments and projects, in-class presentations
		Many electives, for example:		
		PTC 640 BIOL 643 BIOL 668	Health Communications Biology of Addiction Evolutionary Medicine	
SLO5	*Demonstrate professionalism and technical expertise in the broad areas of observation, function, and social skills as related to effective health professionals.*	PTC 660 BIOL 644 BIOL 646	Medical Ethics Physiological Mechanisms Endocrinology	In-class quizzes and exams Literature work assignments and projects In-class presentations
		Many electives, for example:		
		BIOL 653 PTC 640	Medical Genetics and Genomics Health Communications	

In compliance with the accreditation standards and guidelines of the Middle States Commission on Higher Education, NJIT maintains adherence to the following five Institutional Learning Goals (ILG):

1. Research-Based Inquiry: Students employ methods appropriate to their discipline. (ILG1)
2. Collaboration: Students work effectively in teams, applying multidisciplinary and global perspectives. (ILG2)
3. Ethical Conduct: Students demonstrate professional and civic responsibility, including respect for all individuals. (ILG3)
4. Creativity: Students use heuristics to evaluate, analyze, and synthesize innovative solutions to existing and emerging problems. (ILG4)
5. Professional Readiness: Students exhibit knowledge and skills, and engage in experiences, necessary for professional and personal growth. (ILG5)

Beyond NJIT's institutional accreditation by the Middle States Commission on Higher Education, there is no external accreditation applicable to the proposed degree program.

III. RELATIONSHIP TO INSTITUTIONAL STRATEGIC PLAN & INSTITUTIONAL IMPACT

Currently there is no program at NJIT that parallels the proposed Master of Science in Biology of Health (MSBH) program. While the university offers a Master of Science in Biology and a Master of Science in Biomedical Engineering, neither of these programs specifically targets students seeking graduate-level pre-health coursework and preparation. Given its unique focus and target student population, it is expected that the proposed program will have negligible impact on enrollment in the university's existing graduate programs.

The proposed MSBH is strongly aligned with NJIT's strategic priorities, as identified in *Building on a Strong Foundation – NJIT 2025. A Strategic Plan* (2020):

1. Develop new programs in areas with career growth potential that are related to existing NJIT strengths
2. Increase university visibility and establish the university community as a leader in education
3. Attract, admit, and enroll a diverse population of students who can succeed

The number of post-baccalaureate premedical programs has grown considerably in recent years. The Association of American Medical Colleges (AAMC) lists 277 programs in their online index of post-baccalaureate premedical programs (AAMC, 2020d), up from 200 listed in 2014 (Andriole et al., 2015). Such growth has occurred alongside the continued increase in demand for graduate medical education and health professionals (AAMC, 2020a). Therefore, apart from helping the university realize its enrollment goals, the proposed MSBH program will offer a degree with great career-building potential. It will do so building on the existing strength of NJIT in offering graduate level courses in both foundational and applied biomedical sciences.

Post-baccalaureate premedical programs are pre-professional by design; thus, graduates of these programs are well prepared to pursue degrees from numerous graduate-level health professions programs, including dentistry, medical, occupational therapy, optometry, pharmacy, physical therapy, and physician assistant schools. The existing pre-health advising structure at NJIT has been extraordinarily successful in facilitating placement of graduates in medical schools and other health profession programs (89% acceptance rate over the last eight years), while stablishing an excellent reputation with the admissions officers at the target institutions, some of them in the top tier nationwide. The MSBH program will both tie into this structure and add to the reputation of NJIT's pre-health education, therefore increasing visibility of NJIT and enhancing its establishment as a leader in education.

Finally, the proposed MSBH stands to contribute significantly to helping the university achieve its mission to foster a global, inclusive, and diverse student community. Students enrolled in post-baccalaureate premedical programs are more likely to be a member of an underrepresented minority race/ethnicity and are also more likely to come from an economically or educationally

disadvantaged background (Andriole & Jeffe, 2011). Furthermore, multiple studies have shown that graduates of post-baccalaureate premedical programs are more likely to indicate an intention to practice medicine in underserved areas upon graduation from medical school (Andriole & Jeffe, 2011; Andriole et al., 2015; Griffin, Porfeli, & Hu, 2017; McDougle et al., 2015; Vick et al., 2018). The expectation is that a substantial part of the enrollment for MSBH will come out of NJIT's own undergraduate program in Biomedical Engineering, and the program in Biology that is shared with Rutgers-Newark. The undergraduate population of both universities has a high ethnic and racial diversity and above average overall diversity. Students who come from other undergraduate institutions will be exposed to NJIT's culture of inclusiveness and diversity.

IV. NEED

Graduate medical education is a key factor affecting today's doctor shortage (AAMC, 2020e). According to a 2020 report from the Association of American Medical Colleges, "Under most scenarios projected, the total projected demand for physicians exceeds the total projected supply []. Looking at the 25th-to-75th-percentile projections for total physicians, demand will continue to grow faster than supply, leading to a projected shortage of between 54,100 and 139,000 physicians by 2033 []." (AAMC, 2020b, p. 4). A multifaceted solution to the physician shortage includes increasing the total number of medical school matriculants each year. Since 2002, the number of medical school applicants has grown by 58%, matriculants by 32%, and enrollment by 33%, with 20 new domestic medical schools opening in the past decade and class sizes increasing (AAMC 2019). The demand for graduate medical education, thus, continues to grow, and post-baccalaureate premedical programs are a key resource in helping to meet this demand while simultaneously diversifying its workforce (Andriole et al., 2015; Goode & Talbot, 2016). The proposed Master of Science in Biology of Health (MSBH) represents a unique opportunity to help facilitate the preparation under-represented minority students to continue in professional studies in the field of medicine.

IV.A. RELATED PROGRAMS IN THE STATE & REGION

The AAMC broadly categorizes post-baccalaureate premedical programs into one of two types (Andriole et al., 2015, p. 2):

1. Career-changer post-baccalaureate premedical programs: These programs provide opportunities for college graduates to complete pre-medical coursework required for medical-school admission.
2. Academic record-enhancer post-baccalaureate premedical programs: These programs provide college graduates who have completed required coursework the opportunity to strengthen their academic credentials.

Although generally distinct, certain programs may be considered both career-changer and academic record-enhancer. Of the 277 post-baccalaureate premedical programs listed on the AAMC's web site, 59% are career-changer and 78% are academic record-enhancer, and 64% accommodate students with interest in health professions other than phsyician (AAMC, 2020d). Within the State of New Jersey, 57% are career-changer and 43% are academic record-enhancer (AAMC, 2020d).

The AAMC index of post-baccalaureate premedical programs also allows users to filter programs based on those that are targeted specifically towards underrepresented minority students as well as those that are designed for economically or educationally disadvantaged students. Of the 277 post-baccalaureate premedical programs listed on the AAMC's web site, 42% are geared towards

underrepresented minority students and 29% are geared towards economically or educationally disadvantaged students. Within the State of New Jersey, 29% are targeted towards underrepresented minority students and 14% are geared towards economically or educationally disadvantaged students. Table 4 presents a comprehensive list of state and regional programs related to the proposed MSBH, and Table 5 presents a sampling of distinguished programs nationally.

Table 4. Relevant Regional Graduate Programs in Medical Science & Related Fields

State	Institution	Program(s)
CT	Quinnipiac University	MHS, Medical Laboratory Sciences
	University of Connecticut	Medicine & Dental Medicine PBPP
NJ	Cooper Medical School of Rowan University	Advanced Premedical Studies PBPP
	Drew University	PBPP (*ndp*)
	Fairleigh Dickinson University	MHS, Gateway to Professional Studies
	Rider University	Post-Baccalaureate Premedical Studies
	Rowan University	Pre-Health Studies Post-Baccalaureate
	Rutgers University-New Brunswick	PBPP (*ndp*)
	Rutgers Grad. School of Biomedical Sciences	MS, Biomedical Sciences MBS
	Rutgers R.W.J. Medical School	MBS
	William Paterson University	PBPP (*ndp*)
NY	Columbia University Medical Center	Certificate, Premedical Sciences
	Icahn School of Medicine at Mount Sinai	MS, Biomedical Science MS, Clinical Research Certificate, Clinical Research Training Program
	New York Medical College	MS, Basic Medical Sciences
	Tuoro College of Osteopathic Medicine	MS, Biological & Physical Sciences
PA	Chatham University	MS, Biology (*non-thesis option*)
	Drexel University College of Medicine	Interdepartmental Medical Science Program Drexel Pathway to Medical School Program Interdisciplinary Health Sciences Program MBS MS, Medical Science
	Geisinger Commonwealth School of Medicine	MBS
	Lehigh University	MEng, Healthcare Systems Engineering
	Philadelphia College of Osteopathic Medicine	MS, Biomedical Sciences
	Temple University College of Science & Tech.	PBPP (*ndp*)
	Temple University School of Medicine	Advanced Core in Medical Science PBPP

Notes: *MHS: Master of Health Sciences*
PBPP: Post-Baccalaureate Premedical Program
ndp: Non-degree program
MBS: Master of Biomedical Sciences
MS: Master of Science
MEng: Master of Engineering

Table 5. Distinguished National Graduate-Level Medical Science Programs

Institution	Location	Program
Bryn Mawr College	Bryn Mawr, PA	PBPP (*ndp*)
Georgetown University	Washington, DC	MS, Physiology & Biophysics MS, Physiology SMP MS, Physiology Certificate, PBPP Summer Medical Institute Program (*ndp*)
Goucher College	Baltimore, MD	PBPP (*ndp*)
Johns Hopkins University	Baltimore, MD	MHS, Environmental Health & Engineering MHS, Biochemistry & Molecular Biology PBPP (*ndp*)
Scripps College	Claremont, CA	PBPP (*ndp*)

Notes: *PBPP: Post-Baccalaureate Premedical Program*
MS: Master of Science
SMP: Special Master's Program
ndp: Non-degree program
MHS: Master of Health Sciences

V. STUDENTS

Graduates of even just non-degree post-baccalaureate premedical programs comprise approximately 15% of matriculating medical school students annually (Capuzzi Simon, 2012). According to results from the 2019 Matriculating Student Questionnaire (AAMC 2020f), a survey administered annually by the AAMC in order to collect information about first-year medical school matriculants, 8.0% of incoming medical students participated in a career-changer post-baccalaureate premedical program and 7.0% of incoming medical students participated in an academic record-enhancer post-baccalaureate premedical program. Taken together, 15.0% of first-year medical students participated in a post-baccalaureate premedical program in 2019, which is consistent with previous years (e.g., Capuzzi Simon, 2012).

Student enrollment projections for the proposed Master of Science in Biology of Health (MSBH) are thusly based on anticipated demand. We estimate that the program will enroll a cohort of 60 students by its fifth year. The expectation is that the majority of students admitted to the program will enroll on a full-time basis with the goal to complete the program within one year. Some students may elect a minimal full-time course load which will extend the time in the program to a year and a half to two years, and a few students may take the option to attend part-time. Table 6 exhibits the full five-year enrollment projections for the proposed program.

Table 6. Master of Science in Biology of Health Enrollment Projections, AYs 2020-2024

Academic Year	Projected Enrollment
2021 – 2022	15
2022 – 2023	25
2023 – 2024	50
2024 – 2025	55
2025 – 2026	60

V.A. ADMISSIONS REQUIREMENTS

All applicants are required to hold a bachelor's degree from an accredited postsecondary institution.

The required courses for admission (i.e., to be included in the bachelor's degree) are presented in Table 7, and include standard undergraduate pre-health coursework in biology, chemistry, physics, and mathematics. In addition to the prerequisite courses, coursework in cell biology, genetics, and microbiology is strongly recommended.

Students seeking admission should have a cumulative undergraduate grade point average of 2.8 on a 4.0 scale as well as an undergraduate science grade point average of 2.8 on a 4.0 scale. Students who do not meet the required grade point average minima may substitute a graduate degree in the basic sciences or a health-related field, or a national admissions examination score (MCAT or similar).

Table 7. Prerequisite Coursework by Subject Area & Credit Hours for Program Admission

Subject Area	Minimum Credit Hours
Biology	8
Chemistry	8
Organic chemistry	8
Physics	6
Mathematics	6
Behavioral and social sciences	6
Composition/English	3

VI. PROGRAM RESOURCES

VI.A. COURSE DEVELOPMENT

All proposed Master of Science in Biology of Health (MSBH) course materials, including content, lectures, course material, curriculum, text, artwork, documents, syllabi, grading criteria, assessment methodology, etc., will be provided by NJIT, with the exception of a few electives that are offered by Rutgers-Newark, within the joint Biology programs of the shared Federated Department of Biological Sciences of NJIT and Rutgers-Newark. The proposed MSBH courses are set forth in Table 8.

VI.B. FACULTY

The individual MSBH courses are prepared and delivered mostly by faculty from the Federated Department of Biological Sciences.

Professional advisement will be provided by the Director of NJIT's Pre-Health Program, and the Pre-Health Advisory Committee.

VI.C. CLASSROOMS, LABORATORIES, LIBRARIES, & COMPUTING FACILITIES

MSBH is an on-campus program and all courses will be taught in normal class room and laboratory settings. Students will have access to all institutional student resources, including library and computing resources.

VII. DEGREE REQUIREMENTS

Students participating in the MSBH Program are expected to complete a total of thirty (30) university course credits. The expected most common study period for each student is one (1) academic year consisting of two (2) semesters, with the possibility of early registration to take two courses in the summer semester. Students who start in the spring semester and students who elect to register for a lighter course load per semester will be advised on the best sequence of courses to show significant advancement for early applications to medical or other professional programs. The sequence of course work for each students will be planned with the Pre-Health Committee and targeted to the dates of specific professional program application deadlines and admissions tests (MCAT or similar).Upon successful completion of the MSBH Program, students will receive the MSBH degree from NJIT.

In order to graduate, students must have achieved a minimum 3.0 grade point average on a 4.0 scale for 24 credits, with no more than 6 credits of C grades and no failing grades. Courses in

which a student received a failing grade must be repeated and can only be satisfied by earning a grade of B or better.

The full curriculum for the proposed program is presented in Table 8

VII.A. Academic Calendar

The proposed MSBH program will follow the NJIT academic calendar, comprised of two fifteen week semesters and two summer periods.

Table 8. Master of Science in Biology of Health Proposed Curriculum

Semester	Course		Title	Credits	Outcome
Semester I (Fall)	BIOL	650	Human Anatomy	3	A, B, C, or F
	BIOL	644	Physiological Mechanisms	3	A, B, C, or F
	BIOL	646	Endocrinology	3	A, B, C, or F
	CHEM	673	Biochemistry	3	A, B, C, or F
			Neuroscience Elective or other Elective	3	A, B, C, or F
Semester II (Spring)	BIOL	628	Cell Biology of Disease	3	A, B, C, or F
	PTC	660	Medical Ethics	3	A, B, C, or F
			Neuroscience Elective or Other Elective	3	A, B, C, or F
			Elective	3	A, B, C, or F
			Elective	3	A, B, C, or F
TOTAL				**30**	
Neuroscience Electives (at least one required)	26:120:517		Developmental Neurobiology	3	A, B, C, or F
	BIOL	648	Neuropathology	3	A, B, C, or F
	BIOL	635	Intro to Computational Neuroscience	3	A, B, C, or F
	BIOL	636	Advanced Computational Neuroscience	3	A, B, C, or F
	BIOL	640	Cellular Neurophysiology	3	A, B, C, or F
	BIOL	641	Systems Neuroscience	3	A, B, C, or F
Foundational Electives	26:120:515		Molecular Biology of Eukaryotes	3	A, B, C, or F
	26:120:524		Cell, Molecular, and Developmental Biology	3	A, B, C, or F
	BIOL	610	Comparative Vertebrate Anatomy	3	A, B, C, or F
	BIOL	612	Comparative Animal Physiology	3	A, B, C, or F
	BIOL	645	Biological Imaging Techniques	3	A, B, C, or F
	BIOL	672	Computational Systems Biology	3	A, B, C, or F
	MATH	615	Appr to Quantitative Analysis in the Life Sciences	3	A, B, C, or F
	BIOL	668	Evolutionary Medicine	3	A, B, C, or F
	BIOL	653	Medical Genetics & Genomics	3	A, B, C, or F
	BIOL	643	Biology of Addiction	3	A, B, C, or F

Medical and Applied Science Electives	BIOL	606	Appl Bioprocessing & Immune Based Therapies	3	A, B, C, or F
	BIOL	725	Independent Study	3	A, B, C, or F
	BME	650	Clinical Physiology & Neurophysiology	3	A, B, C, or F
	BME	668	Medical Imaging Systems	3	A, B, C, or F
	BME	671	Biomechanics of Human Structure and Motion	3	A, B, C, or F
	EVSC	616	Toxicology	3	A, B, C, or F
	MATH	654	Clinical Trials Design and Analysis	3	A, B, C, or F
	PTC	640	Health Communications	3	A, B, C, or F

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