



## **GUIDE TO MAJORS AT YESHIVA (SCW): BIOCHEMISTRY**

Choosing a major can be stressful, but it is important to understand that you can pursue almost any career regardless of which major you choose. While there are some exceptions, most entry-level positions simply require general transferable skills—those that can be learned in one setting and applied in another. Relevant experience through internships and activities is generally more important to employers than a major. It is best to choose an area that you find interesting and where you have the ability to do well.

### **What is the Biochemistry Major?**

Biochemistry is the study of the molecular basis of life. It deals with the structure and function of cellular components, such as proteins, carbohydrates, lipids, nucleic acids, and other biomolecules. Biochemists study the discrete characteristics of every organism and biological process. They must scientifically understand both the living world and the chemical world. Students in this major study general chemistry, principles of biology, organic chemistry, physical chemistry, biochemistry, calculus, physics, and either cell biology, immunology, genetics or molecular biology.

### **What can I do with a Major in Biochemistry?**

A college graduate with a major in biochemistry is prepared for a wide choice of science related careers. The chemical and pharmaceutical industries provide opportunities for applied chemical research; medicine and the health science fields emphasize the biological aspect of advances in chemistry. The major is an ideal choice for those students interested in graduate education in biochemistry, bioinformatics, chemistry or biology, a career in medicine, medical research or allied health areas, or eventual employment in the areas of forensic science, food science, agricultural research or the biotechnology industry. Some career options available to Biochemistry majors include (all requiring graduate study):

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| <ul style="list-style-type: none"> <li>• Allied Health Professional</li> <li>• Biomedical Engineer*</li> <li>• Biotechnologist</li> <li>• Chemical Engineer*</li> <li>• Consultant (healthcare industry)</li> <li>• Forensic Scientist</li> <li>• Government Researcher</li> <li>• Medical Researcher</li> </ul> | <ul style="list-style-type: none"> <li>• Patent Lawyer</li> <li>• Physician</li> <li>• Pharmacist</li> <li>• Pharmacologist</li> <li>• Plant Pathologist</li> <li>• Professor</li> <li>• Research Associate/Scientist</li> <li>• Toxicologist</li> </ul> | <p><b>No graduate work needed for:</b></p> <ul style="list-style-type: none"> <li>• Entrepreneur</li> <li>• Molecular Biology Technician</li> <li>• Research Assistant</li> <li>• Regulatory Assistant</li> </ul> |
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\*Students interested in a career in biomedical/chemical engineering may consider the combined engineering program with Columbia University School of Engineering and Applied Science.

### **Skills and Abilities**

Biochemistry majors gain expertise in the molecular basis of the processes that take place in cells and organisms. They will also be able to plan, conduct and evaluate experiments and research and interpret scientific literature. The following list provides a sample of the potential skills acquired through study in Biochemistry:

- Biology theory & practical knowledge
- Communication skills
- Critical thinking abilities
- Information handling & organization
- Operation of scientific equipment
- Problem solving skills
- Quantitative skills
- Statistical awareness
- Teaming skills
- Technical skills

### Joint Program Options

**Nursing- B.A./B.S.N./M.S.N.:** Stern College offers combined programs in nursing with New York University College of Nursing. In this program students complete a Shaped Major as well as General and adjusted Jewish Studies requirements at Stern College. Students complete this work during 7 semesters and must earn a minimum of 119 credits. Credits remaining to complete the BA degree are counted back from the u nursing school. Eligible students may then be admitted to a 15 month accelerated program at NYUCN which begins in January. Students receive the BA degree after successfully completing one semester at NYUCN. They are awarded the BSN at the successful completion of the nursing school and have the option of continuing on for a master's degree.

**Nutrition: B.A./M.S.:** YU students may enroll at NYU as non-degree undergraduate students in courses in nutrition and dietetics in their junior or senior year. Students pay NYU directly for these credits. These courses satisfy some of the prerequisite courses required for many clinical nutrition programs throughout the country including the NYU Master of Science degree program in Nutrition and Dietetics.

**Occupational Therapy- B.A./M.S.:** Stern College offers a combined program in Occupational Therapy with Columbia University. During the first three years at SCW, students complete college requirements and prerequisites for Columbia's OT program. They apply to the 2-year Columbia program during the fall semester of their junior year. Students are awarded the B.A. from Stern College after the first year at Columbia, and the M.S. upon completion of the program.

**Optometry-B.A./O.D:** Stern College and the State University of New York State College of Optometry offer an affiliation program to qualified students through which they can receive an undergraduate degree and a Doctor of Optometry degree in seven years. Students accepted into this program attend SCW for three years while they complete college requirements and prerequisites for the College of Optometry. After the first year at SUNY College of Optometry, students receive the B.A. degree. The O.D. degree is awarded after completing the four years at SUNY College of Optometry.

**Physical Therapy- B.A./D.P.T.:** The Early Acceptance Program with New York Medical College Graduate School of Health Sciences allows qualified students to receive provisional acceptance to the 3-year D.P.T. Program after their junior year. Final acceptance is granted upon satisfactory completion of their senior year at SCW. Stern College also offers a combined program in Physical Therapy with the State University of New Jersey (Rutgers). During the first three years at Stern College, students complete college requirements and prerequisites for the Doctorate of Physical Therapy Program. Students are awarded the B.A. after completing the first year at the professional school, and the D.P.T. at the completion of the 3-year program.

**Physician Assistant - B.A./M.S.:** Stern College offers a combined program in Physician Assistant Studies with Mercy College. During the first three years, students complete college requirements and prerequisites for Mercy College's M.S. program. After completing 111 credits with a minimum GPA of 3.0, and with at least a "B" in prerequisite courses, qualified students continue at Mercy College. After the first year at Mercy College, students receive the B.A. degree from Stern College. The M.S. degree is awarded after completing two years and three months at Mercy.

**Podiatry - B.A./D.P.M.:** Stern College and the New York College of Podiatric Medicine offer a combined program in Podiatry. During the first three years, students recommended to the program complete college requirements and prerequisites for the NY College of Podiatric Medicine. After the first year at NYCPM, SCW awards the B.A. NYCPM awards the D.P.M. at the completion of the program.

**Teaching Math and Science- B.A./M.A.:** Stern College and NYU Steinhardt offer an accelerated option for a Master's Degree in Mathematics and Science Education. During the junior and/or senior year students may take up to 14 credits at NYU Steinhardt which will count toward both the undergraduate and graduate degrees. Students pay NYU directly for these credits. Yeshiva University awards students the B.A. degree after completion of all B.A. requirements and NYU awards an M.A. degree upon completion of the graduate program.