

# Fall 2024 Undergraduate Program Director (UPD) Report

Tanush Nagavelli - 12/1/2024 10:25:49 PM -05:00

## Received

Date:

By:

Comment:

## Instructions

This is a form for SEBS Governing Council major representatives. The purpose of this form is to encourage student engagement with faculty/department representatives and to identify academic issues that may be addressed by the council.

1. Talk to students in your major, ask around if there are any current academic issues (ex: class conflicts within the major, issues with professors or department, lack of resources).
2. Look at Degree Navigator, write down the course requirements
3. Formulate a list of things you would like to know about the program (corporate connections with the university, current research projects, opportunities for students to get involved, recent changes to the program)
4. Email Undergraduate Program Director and Arrange Appointment
5. Fill out this form and submit by 11:59pm on November 17th, 2024.

n/a

## General Information

Your Name

Tanush Nagavelli

Your Email

tn313@scarletmail.rutgers.edu

Represented Major

Biotechnology

Date of Meeting with UPD

November 20, 2024

Class Year

2026

UPD Name

Paul Meers

UPD Email

paul.meers@rutgers.edu

Major/Departmental Website Link (if applicable)

<https://biotech.rutgers.edu/>

## Major Information

Major Options -- What options are offered within the major? How do they differ?

There are 6 options offered within the biotechnology major. They are the Bioscience Policy and Management option, Microbial Biotechnology, Bioinformatics, Plant Biotechnology, Animal Biotechnology, and General Biotechnology. The listed options differ in the emphasis placed on specific aspects of biotechnology. The animal and plant biotechnology options focus on the large-scale biotechnology that can be derived from their respective areas of study. Microbial biotechnology heavily emphasizes the bacterial world of biology and what can be studied from it. The bioinformatics option is course-heavy on data analytical biotechnology, with courses highlighting genetic modeling and data-driven work. Bioscience policy and management is the business option within biotechnology, and students typically work with the Rutgers Business School for their courses. The general biotechnology option provides a broad scope regarding what biotechnology is and gives students a taste of all the fields available career-wise.

Total Number of Students within the Major (estimate if unknown from UPD)

The total number of students is approximately 3,000.

Goals within the Major -- What are expectations of students post-graduation?

Students who graduate with a degree in Biotechnology from Rutgers-New Brunswick are expected to have a higher understanding of the science behind both the field and applications of biotechnology, show a refined ability to use laboratory equipment associated with biotechnological experiments, be able to understand published research to apply to new findings within the field, and work as a team in a laboratory setting.

List Upper-Level major courses -- What is the goal of each course?

Nucleotide Sequence Analysis - Computer analysis of nucleotide sequences: assembly, restriction analysis, gene location and identification, protein sequence analysis and structure prediction, database searching, sequence alignments, and phylogenetic analysis. General Biochemistry 1 and 2 - A comprehensive survey of the chemistry and metabolism of biological compounds, including proteins, polysaccharides, lipids, and nucleic acids. Enzyme kinetics, bioenergetics, organelles, and cellular organization. Expression and processing of biological information, including DNA replication, transcription into RNA, translation into protein, regulation, and recombinant DNA techniques. Methods and Applications in Molecular Biology - Introduction to techniques and experimental approaches used in recombinant DNA technology. Molecular Genetics - principles of genetics at the molecular level, including the chemical nature of hereditary material. The genetic code, regulatory mechanisms, the molecular basis of mutation, DNA replication, and recombination. Molecular Genetics Laboratory - Biochemical and molecular aspects of gene function and recombination.

## Student Issues

Are there concerns with classes within the major? Are there any suggestions for solutions to these concerns?

Concerns: Trouble with teaching resources, not enough faculty, not enough courses to fulfill major requirements. No solutions yet, but Dr. Meers is currently working on a budgeting solution.

From the perspective of the UPD or other major faculty members, what can currently be improved upon in the major or department? Are there any suggestions for solutions to these issues?

Some suggestions from the UPD that could improve the major are updating the degree navigator with relevant prerequisite courses, adding more elective courses for biotechnology, and making labs and internships more accessible for students. One suggestion he made for the labs and internships is creating a spreadsheet with labs hiring student interns

Are there any Visitor Events/Talks/Seminars/etc. going on within the major?

There are no seminars currently planned within the major. Our UPD proposed working with the Designer Genes Biotechnology Club to start more events for biotechnology students. It would also benefit students to understand what exactly biotechnology is, since most confuse it with biomedical engineering.

Suggestions for students in this major (ex: organizations to join, news to pay attention to)

Look at the biotechnology major website ([biotech.rutgers.edu](http://biotech.rutgers.edu)) and understand that it is not an easy major and being able to work through the requirements and prerequisites will be challenging. and look into the Aresty program

Changes within the major for the upcoming year

Initially, there was a lack of faculty for the Bioinformatics course, but there is now a professor. Our UPD was also working on making the major outline neater as some courses have been removed from Rutgers.

Any other suggestions, comments, concerns?

We need more relevant electives, and there is no bioinformatics department, so there is a lot of difficulty in keeping it as an option. One proposed suggestion was the idea of a bioinformatics-specific coding class since there is a lot of overlap with the CS department and classes are oversaturated. There is a student going to Kora for a study abroad program, so it could help by having more programs like that.