BIOLOGY/ MATHEMATICS, BS

Biology student Anastacia Wienecke writing code in Python and R to analyze the influence of codon bias on protein synthesis rates in yeast

Biology is an increasingly quantitative discipline, requiring mathematical models to understand complex biological phenomena and computationally-intensive algorithms to analyze increasingly massive datasets, including those generated by genomics, proteomics, and other new areas in molecular biology. More than ever, employers in fields such as bioengineering, theoretical biology, ecology, and molecular biology are seeking to hire people equipped to handle the quantitative rigors of modern biology. The Biology/ Mathematics B.S. degree enables students to develop a strong background in biology along with a broadly applicable understanding of quantitative and computational pproaches to problem-solving, giving graduates from this program a unique and highly sought set of skills.

HOT TOPICS

Can mathematical models be used to predict the parameters and dynamics of a population?

How have evolutionary processes diversified genes within and between species?

To learn more about this major, visit the university catalog – **catalog.wwu.edu**

For a complete overview of course requirements for this program, access Degree Works via Web4u

Join the conversation: *facebook.com/groups/wwubiology*

WESTERN WASHINGTON UNIVERSITY
BIOLOGY DEPARTMENT

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STUDENT SPOTLIGHT

"I have always been excited about biology and math, and this program was the perfect blend of the two. It prepared me for fun and interesting undergraduate and then graduate work in the Pollard lab doing computational genetics. Lately, I've been modeling how genetic variation among yeast strains contributes to differences in their protein synthesis and decay rates, which can lead to trait variation."

- Anastacia Wienecke

SAMPLE CAREER PATHWAYS

Research Analyst

Bioinformaticist

Computational Biologist

Populations Researcher

Educator

Research Scientist

FACULTY ADVISORS

Robin Kodner

Benjamin Miner

Dan Pollard

Matt Zinkgraf

CURRICULUM HIGHLIGHTS

BIOL 397B
Sequence Analysis

BIOL 497R
Genomic Data Analysis

MATH 341
Probability and Statistical Inference

MATH 415
Mathematical Biology

CSCI 474
Bioinformatics

SAMPLE FIRST YEAR SCHEDULE

ALEKS Score:	FALL	WINTER	SPRING
Prior completion of Calc. 1	BIOL 204 CHEM 161 3-5 cr. non-science GURs	BIOL 205 CHEM 162 3-5 cr. non-science GURs	BIOL 206 CHEM 163 3-5 cr. non-science GURs
80	MATH 124 CHEM 161 3-5 cr. non-science GURs	BIOL 204 CHEM 162 3-5 cr. non-science GURs	BIOL 205 CHEM 163 3-5 cr. non-science GURs
70	MATH 118 CHEM 161 3-5 cr. non-science GURs	MATH 124 CHEM 162 3-5 cr. non-science GURs	BIOL 204 CHEM 163 3-5 cr. non-science GURs
55	MATH 114 7-10 cr. non-science GURs	MATH 115 CHEM 161 3-5 cr. non-science GURs	MATH 124 CHEM 162 3-5 cr. non-science GURs
35	MATH 112 7-10 credits of non-science GURs	MATH 114 7-10 credits of non-science GURs	MATH 115 CHEM 161 3-5 cr. non-science GURs

COURSE LOAD

Due to the heavy workload associated with lab-based courses, students are advised to take no more than two science courses per quarter (including math) during their first year. Course load will increase as students move through their program requirements.

DECLARING A BIOLOGY MAJOR

There is a two-step process for admission into all Biology degree programs. Phase I majors are students who have declared their intent to major in Biology and are in the process of completing the introductory biology and chemistry series (BIOL 204, 205, 206 & CHEM 161, 162, 163). Students must achieve a minimum GPA of 2.9 across these courses before they are advanced to Phase II and may begin taking upper-division courses. During their last quarter of Phase I, students will be required to attend a Phase II Advising Workshop prior to being advanced.

COURSE PLANNING WORKSHEET

	FALL	WINTER	SPRING	SUMMER
Year 1				
Year 2				
Year 3				
Year 4				