TIFFIN UNIVERSITY

ACADEMIC PATHWAY

BACHELOR OF ARTS IN BIOCHEMISTRY

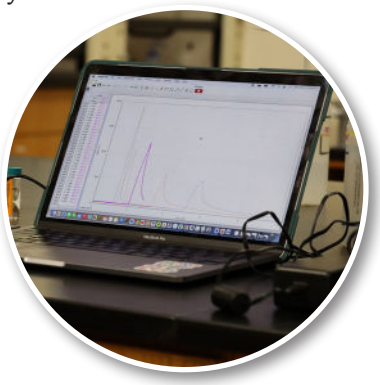
What is Biochemistry?

Biochemistry is the study of the chemical processes and substances that occur within living organisms. It connects biology and chemistry to explain how molecular interactions give rise to life's functions and structures. Think of it as the application of chemistry to understand life, disease and medicine.

Why study Biochemistry?

Biochemistry is a major for students who want to understand life at its most fundamental level—where chemistry becomes biology, and molecules tell the story of health, disease and discovery. If you are considering pre-med, pre-health or forensic science, biochemistry provides the scientific foundation that ties everything together. As a biochemistry major, you will explore how chemical interactions drive the body's most important processes, from how enzymes speed up life-sustaining reactions to how cells repair DNA, fight disease and respond to medications. This is the science behind medical advances, pharmaceutical development, forensic investigations and modern biotechnology. At its core, biochemistry prepares you to solve real-world problems that matter. It supports careers in medicine, health professions, forensic science and biomedical research by building strong analytical, laboratory and problem-solving skills. A Biochemistry degree equips you with the knowledge and confidence to pursue advanced study or enter the workforce ready to make a meaningful impact on human health and society.

What can I do with a Biochemistry degree?



A Biochemistry degree is your launchpad into high-impact careers in medicine, pharmaceuticals, biotechnology and research, equipping you with the foundational knowledge to shape a healthier world. Here are some common career paths for individuals with a degree in biochemistry:

Biochemistry majors can continue to a wide variety of graduate programs depending on their career goals including:

- Medical fields: general medicine, osteopathic medicine, physician assistant, dentistry, optometry, surgery, chiropractics, etc.
- Pharmacy
- Veterinary sciences
- Scientific research: MS, PhD degrees

Biochemistry majors can use their BS degrees to work in a wide variety of fields including:

- Biotechnology or government research
- Clinical, diagnostic or pathologic laboratory science
- Forensic science
- Education
- Technical sales and marketing
- Quality control/quality assurance

SCHOOL OF SCIENCE TECHNOLOGY AND HEALTH

How much will I earn with a Biochemistry degree?

(*Graduate degree required)

Occupation	Mean Annual Wage
Physician*	$252,480
Surgeon*	$343,990
Pharmacist*	$136,030
Optometrist*	$131,860
Dentist*	$170,910
Physican Assistant*	$119,460
Veterinarian*	$109,920
College Faculty*	$85,810

Occupation	Mean Annual Wage
Biochemist or Biophysicist	$113,460
Medical Scientist	$104,050
Microbiologist	$87,820
Clinical Lab Technician	$56,910
Forensic Science Technician	$71,540
Quality Assurance Specialist	$70,673
Science Teacher	$64,580

Bureau of Labor Statistics, bls.gov

What is your pathway to graduation?

For students testing into MAT181: College Algebra

YEAR 1	
FALL - 16 credit hours	**SPRING - 16 credit hours**
BIO120+L: General Biology I	BIO121+L: General Biology II
MAT181: College Algebra	MAT275: Pre-Calculus
ENG141: Introduction to Rhetoric and Academic Writing	ENG142: Rhetoric and Academic Writing
DEC100: Engage	DLT101: Digital Literacy and Technology Readiness
NAT130: Foundations of Healthy Living	COM130: Introduction to Speech Communication

YEAR 2	
FALL - 16 credit hours	**SPRING - 15-17 credit hours**
CHM131+L: General Chemistry I	CHM132+L: General Chemistry II
MAT281: Calculus I	BIO373+L: Microbiology
BIO333+L: Genetics	Major Elective
Core/Open Elective	STH201: STEM Seminar I
	DEC200: Explore

YEAR 3	
FALL - 17 credit hours	**SPRING - 16 credit hours**
CHM231+L: Organic Chemistry I	CHM232+L: Organic Chemistry II
CHM281+L: Analytical Chemistry	CHM411+L: Biochemistry
CHM370: Scientific Research Design or SAS470: Internship	BIO445+L: Cellular and Molecular Biology
MAT273: Applied Statistics I	STH301: STEM Seminar II
Core/Open Elective	DEC300: Connect

YEAR 4	
FALL - 14-16 credit hours	**SPRING - 14-16 credit hours**
CHM413+L: Advanced Topics in Biochemistry	Major Elective
Major Elective	PHY212+L: Physics II
PHY211+L: Physics I	STH401: STEM Seminar III
Core/Open Elective	DEC400: Impact
	Core/Open Elective

For students testing into MAT275: Pre-Calculus

YEAR 1	
FALL - 17 credit hours	**SPRING - 14 credit hours**
CHM131+L: General Chemistry I	CHM132+L: General Chemistry II
BIO120+L: General Biology I	BIO121+L: General Biology II
DEC100: Engage	ENG142: Rhetoric and Academic Writing
ENG141: Introduction to Rhetoric and Academic Writing	MAT275: Pre-Calculus or elective
NAT130: Foundations of Healthy Living	

YEAR 2	
FALL - 16 credit hours	**SPRING - 14-16 credit hours**
CHM231+L: Organic Chemistry I	CHM232+L: Organic Chemistry II
CHM281+L: Analytical Chemistry	STH201: STEM Seminar I
MAT281: Calculus I	Major Elective
COM130: Introduction to Speech Communication	DEC200: Explore
	DLT101: Digital Literacy and Technology Readiness

YEAR 3	
FALL - 14-16 credit hours	**SPRING - 15 credit hours**
PHY211+L: Physics I	CHM411+L: Biochemistry
BIO333+L: Genetics	STH301: STEM Seminar 2
Major Elective	PHY212+L: Physics II
MAT273: Applied Statistics I	DEC300: Connect
	BIO373+L Microbiology

YEAR 4	
FALL - 16 credit hours	**SPRING - 14-16 credit hours**
CHM413+L: Advanced Topics in Biochemistry	BIO445+L: Cellular and Molecular Biology
CHM370: Scientific Research Design or SAS470: Internship	STH401: STEM Seminar 3
Core/Open Elective	DEC400: Impact
Core/Open Elective	Major Elective
Core/Open Elective	Core/Open Elective

For students testing into MAT281: Calculus I

*If major elective is taken during year 1, then core/open elective should be taken in year 3, or vice versa.

YEAR 1	
FALL - 16 credit hours	**SPRING - 14-16 credit hours**
CHM131+L: General Chemistry I	CHM132+L: General Chemistry II
BIO120+L: General Biology I	BIO121+L: General Biology II
MAT281: Calculus I	Major Elective or Core/Open Elective*
DEC100: Engage	COM130: Introduction to Speech Communication

YEAR 2	
FALL - 17 credit hours	**SPRING - 15 credit hours**
CHM231+L: Organic Chemistry I	CHM232+L: Organic Chemistry II
BIO333+L: Genetics	BIO373+L: Microbiology
ENG141: Introduction to Rhetoric and Academic Writing	ENG142: Rhetoric and Academic Writing
NAT130: Foundations of Healthy Living	STH201: STEM Seminar I
DLT101: Digital Literary and Technology Readiness	DEC200: Explore

YEAR 3	
FALL - 14-16 credit hours	**SPRING - 16 credit hours**
CHM281+L: Analytical Chemistry	CHM411+L: Biochemistry
CHM370: Scientific Research Design or SAS470: Internship	BIO445+L: Cellular and Molecular Biology
PHY211+L: Physics I	PHY212+L: Physics II
Major Elective or Core/Open Elective*	STH301: STEM Seminar II
	DEC300: Connect

YEAR 4	
FALL - 16-18 credit hours	**SPRING - 16-18 credit hours**
CHM413+L: Advanced Topics in Biochemistry	Major Elective
Major Elective	STH401: STEM Seminar III
MAT273: Applied Statistics I	DEC400: Impact
Core/Open Elective	Core/Open Elective
Core/Open Elective	Core/Open Elective
	Core/Open Elective

What if I want to be a doctor?

YEAR 2 (Required)	
FALL	**SPRING**
BIO211+L: Anatomy and Physiology 1	BIO222+L: Anatomy and Physiology 2
	MAT285: Calculus II

YEAR 3 (Required)	
FALL	**SPRING**
PSY101: Introduction to Psychology	SOC101: Principles of Sociology

YEAR 4 (Recommended)	
FALL	**SPRING**
CUL220: Religions of the World	FOR485: Death and Dying
ENG301: Professional Communication	HCA403: Healthcare Law

What if I want to be a dentist?

YEAR 2 (Required)	
FALL	**SPRING**
BIO211+L: Anatomy and Physiology 1	BIO222+L: Anatomy and Physiology 2
	MAT285: Calculus II

YEAR 3 (Recommended)	
FALL	**SPRING**
PSY101: Introduction to Psychology	SOC101: Principles of Sociology

YEAR 4 (Recommended)	
FALL	**SPRING**
MGT201: Management of Organizations	MGT359: Small Business Management
ACC210: Financial Accounting	MKT151: Introduction to Marketing
ART120: 2 Dimensional Foundations	ART260: Drawing

What if I want to do scientific research (MS/PhD pathway)?

YEAR 3 (Recommended)	
FALL	**SPRING**
	PSY101 Introduction to Psychology

YEAR 4 (Recommended)	
FALL	**SPRING**
MAT373: Applied Statistics II	ENG301: Professional Communication

Can I choose a minor?

AI+X	
COURSE NAME	**CREDITS**
AIP205: Ethics in AI	3
MAT287: Discrete Mathematics	3
BIA273: Applied Business Statistics	3
BIA280: Introduction to Artificial Intelligence	3
BIA299: Data Mining for Decision Making	3
BIA400: Machine Learning	3

MATHEMATICS	
COURSE NAME	**CREDITS**
MAT285: Calculus II (Biochemistry Major Elective)	5
MAT385: Calculus III	3
MAT387: Differential Equations	3
MAT396: Linear Algebra	3
One MAT elective (300/400)	3

Continued on next page...

COMPUTER SCIENCE TECHNOLOGY	
COURSE NAME	**CREDITS**
CDS244: Cyber Security	3
CST155: Introduction to Operating Systems	3
CST201: Introduction to Programming	3
CST230: Networking Fundamentals	3
CST280: Database I	3
CST412: IT Project Management	3

Enhance your degree with a designation.
Students pursuing careers in dentistry, medicine or veterinary sciences may find themselves wanting to establish a private practice. The Small Business Administration designation will help prepare them for the challenges presented by establishing and running a small business.

Students pursuing careers in research will want a solid foundation in statistical analysis necessary for interpreting the results of their research. The Statistical Analysis designation will give students a deeper understanding of the types of statistical analyses that can be conducted and help them incorporate them into their work.

SMALL BUSINESS ADMINISTRATION	
COURSE NAME	**CREDITS**
ACC210: Financial Accounting	3
MKT151: Introduction to Marketing	3
MGT201: Management of Organizations	3
MGT359: Small Business Management	3

STATISTICAL ANALYSIS	
COURSE NAME	**CREDITS**
MAT373: Applied Statistics 2	3
MAT396: Linear Algebra	3
MAT376: Statistics	3

Stay on track!

YEAR 1

- Meet with your faculty mentor to identify your goals and develop a plan to meet those goals.
- Meet with a biology or chemistry professor about undergraduate research opportunities.
- Explore student organizations on campus.
- Consider job shadowing (especially pre-professional students).
- Engage in volunteer opportunities in the community based in chemistry (American Chemical Society club).

YEAR 2

- Meet with your faculty mentor to ensure you are on track with your goals.
- Get involved with undergraduate research.
- Continue job shadowing to build a professional network.
- Explore graduate/medical/dental/veterinary programs.
- Develop your CV or resume.
- Prepare for graduate admissions exams (GRE, MCAT, DAT, etc.).
- Work on getting a summer research experience for undergraduates (REU) or internship.
- Get an on-campus job as either a teaching assistant in chemistry or a tutor.
- Engage in volunteer opportunities in the community based in chemistry (American Chemical Society club).

YEAR 3

- Meet with your faculty mentor to ensure you are on track with your goals.
- Visit career services early in the fall to discuss internships. Apply for internships later in the fall/spring.
- Begin assembling your application packets for graduate school (CV/resume, cover letter, letters of recommendation, etc.).
- Plan a course of study for your graduate admissions exams (GRE, MCAT, DAT, etc.).
- Work on getting a summer REU or internship.
- Get an on-campus job as either a teaching assistant in chemistry or a tutor.
- Engage in volunteer opportunities in the community based in chemistry (American Chemical Society club).
- Take leadership positions in student organizations.
- Shadow in your field of interest.

YEAR 4

- Meet with your faculty mentor to ensure you are on track with your goals.
- Meet with your academic advisor to ensure you have taken all the classes needed for graduation.
- Take your graduate admissions exam.
- Apply to graduate/medical/dental school or begin your job search.
- Apply for graduation.
- Get an on-campus job as either a teaching assistant in chemistry or a tutor.
- Engage in volunteer opportunities in the community based in chemistry (American Chemical Society club).
- Take leadership positions in student organizations.

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