TIFFIN UNIVERSITY

ACADEMIC PATHWAY

BACHELOR OF ARTS IN CHEMISTRY

What is Chemistry?

The discipline of chemistry is often considered the central science, given its relationship between physics and biology. Chemistry is the science of the composition, structure, properties and reactions of matter. Chemistry is a fundamental branch of science, investigating atomic and molecular systems.

Why study Chemistry?

Chemistry allows researchers to understand observations made by nature. For example, one could ask: Why are unripe fruits and vegetables bitter? How does drain cleaner unclog pipes? What makes flowers smell good? How is medicine manufactured and determined to be safe for consumption? An increased understanding of the benefits and risks associated with chemicals can allow citizens to make more informed, intelligent choices in society. Chemical analysis is also a powerful tool used in all manufacturing and monitoring of our environment. Chemistry teaches the logic necessary to solve real-life problems based on evidence or facts that can be applicable in all fields.

The completion of a degree in TU's chemistry program will enable students to be admitted in professional graduate programs in medicine, dentistry, veterinary, physician's assistant or law programs. In addition, this major can be used to support students interested in teaching chemistry in high school to enable them to obtain state licensure to teach. Students who graduate with this degree can also work in careers in commercial and industrial laboratories, sales (involving technical and equipment service) and chemical patent lawyers.

What can I do with a Chemistry degree?

A degree in chemistry can open a wide range of career opportunities in various industries, research institutions, government agencies and academia. Here are some common career paths for individuals with a degree in chemistry:

- Research Scientist
- Analytical Chemist
- Pharmaceutical Scientist
- Environmental Scientist
- Quality Control/Quality Assurance Specialist
- Teaching/Education
- Patent Examiner/Intellectual Property Specialist
- Technical Sales/Marketing

These are just a few examples, and there are many other career paths available to individuals with a degree in chemistry. Additionally, many chemistry graduates pursue further education, such as graduate school or professional programs in fields like medicine, pharmacy or law.

How much will I earn with a Chemistry degree?

Bureau of Labor Statistics, bls.gov

Occupation	Total Employment	Mean Annual Wage
Forensic Science Technicians	18,500	$63,740
Dentist	155,000	$159,530
Chemist and Materials Scientists	95,000	$81,810
Patent Lawyer	826,300	$135,740
Biochemists and Biophysicists	34,500	$103,810
Medical Scientists	119,000	$99,930
Pharmacists	334,200	$132,750
Environmental Scientist	80,500	$76,480
Medical Physician	816,900	$229,300
Optometrist	43,400	$125,590
Whole Sales and Manufacturing Sales Representatives	1,649,900	$67,750
Faculty	1,333,900	$80,840

SCHOOL OF SCIENCE TECHNOLOGY AND HEALTH

What is your pathway to graduation?
Testing into MAT281 (Calculus I)

YEAR 1	
FIRST YEAR FALL - 16 credit hours	**FIRST YEAR SPRING - 16 credit hours**
CHM131+L: General Chemistry I	CHM132+L: General Chemistry II
BIO120+L: General Biology I	BIO121+L: General Biology II
DEC100: Engage	ENG141: Rhetoric and Research Writing
MAT281: Calculus I	MAT285: Calculus II

YEAR 2: ODD YEARS	
FIRST YEAR FALL - 14 credit hours	**FIRST YEAR SPRING - 14 credit hours**
CHM231+L: Organic Chemistry I	CHM232+L: Organic Chemistry II
ENG142: Rhetoric and Academic Writing	COM130: Introduction to Speech Communication
PHY211+L: Physics I	PHY212+L: Physics II
MAT273: Applied Statistics	DEC200: Explore

YEAR 2: EVEN YEARS	
FIRST YEAR FALL - 14 credit hours	**FIRST YEAR SPRING - 14 credit hours**
CHM231+L: Organic Chemistry I	CHM232+L: Organic Chemistry II
ENG142: Rhetoric and Academic Writing	COM130: Introduction to Speech Communication
CHM281+L: Analytical Chemistry	CHM481+L: Instrumental Analysis
MAT273: Applied Statistics	DEC200: Explore

YEAR 3: ODD YEARS	
FIRST YEAR FALL - 14 credit hours	**FIRST YEAR SPRING - 14 credit hours**
CHM/BIO/MAT Elective	CHM411+L: Biochemistry
PHY211+L: Physics I	PHY212+L: Physics II
DLT101: Digital Literacy and Technology Readiness	DEC300: Connect
NAT130: Foundations of Healthy Living AND MAT273: Applied Statistics (if still needed)	Internship/ CHM370: Experimental Research Design

YEAR 3: EVEN YEARS	
FIRST YEAR FALL - 14 credit hours	**FIRST YEAR SPRING - 14 credit hours**
CHM281+L: Analytical Chemistry	CHM481+L: Instrumental Analysis
NAT130: Foundations of Healthy Living	CHM450+L: Physical Chemistry
CHM/BIO/MAT Elective	DEC300: Connect
DLT101: Digital Literacy and Technology Readiness AND MAT273: Applied Statistics (if still needed)	Internship/ CHM370: Experimental Research Design

YEAR 4: EVEN YEARS	
FIRST YEAR FALL - 13 credit hours	**FIRST YEAR SPRING - 14 credit hours**
Internship/CHM370: Experimental Research Design	CHM450+L: Physical Chemistry
CHM/BIO/MAT Elective	DEC400: Impact
HIS201/ENG201/PHI110/ART210/CUL210	CHM/BIO/MAT Elective

YEAR 4: ODD YEARS	
FIRST YEAR FALL - 14 credit hours	**FIRST YEAR SPRING - 14 credit hours**
CHM/BIO/MAT Elective	CHM411+L: Biochemistry
Internship/CHM370: Experimental Research Design	DEC400: Impact
HIS201/ENG201/PHI110/ART210/CUL210	CHM/BIO/MAT Elective

Testing into MAT275 (Precalculus)

YEAR 1	
FIRST YEAR FALL - 14 credit hours	**FIRST YEAR SPRING - 16 credit hours**
CHM131+L: General Chemistry I	CHM132+L: General Chemistry II
BIO120+L: General Biology I	BIO121+L: General Biology II
DEC100: Engage	ENG141: Rhetoric and Research Writing
COM130: Introduction to Speech Communication	MAT275: Precalculus

YEAR 2: ODD YEARS	
FIRST YEAR FALL - 16 credit hours	**FIRST YEAR SPRING - 16 credit hours**
CHM231+L: Organic Chemistry I	CHM232+L: Organic Chemistry II
PHY211+L: Physics I	PHY212+L: Physics II
Optional: Applied Statistics or Open Elective	DEC200: Explore
MAT281: Calculus I	MAT285: Calculus II

YEAR 2: EVEN YEARS	
FIRST YEAR FALL - 16 credit hours	**FIRST YEAR SPRING - 16 credit hours**
CHM231+L: Organic Chemistry I	CHM232+L: Organic Chemistry II
ENG142: Rhetoric and Academic Writing	CHM481+L: Instrumental Analysis
CHM281+L: Analytical Chemistry	DEC200: Explore
MAT281: Calculus I	MAT285: Calculus II

YEAR 3: EVEN YEARS	
FIRST YEAR FALL - 17 credit hours	**FIRST YEAR SPRING - 17 credit hours**
CHM281+L: Analytical Chemistry	CHM481+L: Instrumental Analysis
NAT130: Foundations of Healthy Living	CHM450+L: Physical Chemistry
CHM/BIO/MAT Elective	DEC300: Connect
DLT101: Digital Literacy and Technology Readiness AND MAT273: Applied Statistics (if still needed)	ENG142: Rhetoric and Academic Writing
	Internship/CHM370: Experimental Research Design

YEAR 3: ODD YEARS	
FIRST YEAR FALL - 17 credit hours	**FIRST YEAR SPRING - 17 credit hours**
CHM/BIO/MAT Elective	DEC300: Connect
PHY211+L: Physics I	Internship/ CHM370: Experimental Research Design
DLT101: Digital Literacy and Technology Readiness	DEC300: Connect
NAT130: Foundations of Healthy Living AND MAT273: Applied Statistics (if still needed)	

YEAR 4: EVEN YEARS	
FIRST YEAR FALL - 13 credit hours	**FIRST YEAR SPRING - 13 credit hours**
Internship/CHM370: Experimental Research Design	CHM450+L: Physical Chemistry
CHM/BIO/MAT Elective	DEC400: Impact
HIS201/ENG201/PHI110/ART210/CUL210	CHM/BIO/MAT Elective
	Open Elective

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YEAR 4: ODD YEARS	
FIRST YEAR FALL - 14 credit hours	**FIRST YEAR SPRING - 14 credit hours**
CHM/BIO/MAT Elective	CHM411+L: Biochemistry
Internship/CHM370: Experimental Research Design	DEC400: Impact
HIS201/ENG201/PHI110/ART210/CUL210	CHM/BIO/MAT Elective

Testing into MAT181 (College Algebra)

YEAR 1	
FIRST YEAR FALL - 17 credit hours	**FIRST YEAR SPRING - 16 credit hours**
CHM131+L: General Chemistry I	CHM132+L: General Chemistry II
BIO120+L: General Biology I	BIO121+L: General Biology II
DEC100: Engage	ENG141: Rhetoric and Research Writing
COM130: Introduction to Speech Communication	MAT275: Precalculus
MAT181: College Algebra	
CHM131S: General Chemistry Supplemental (0 credits)	

YEAR 2: ODD YEARS	
FIRST YEAR FALL - 16 credit hours	**FIRST YEAR SPRING - 16 credit hours**
CHM231+L: Organic Chemistry I	CHM232+L: Organic Chemistry II
PHY211+L: Physics I	PHY212+L: Physics II
Optional: Applied Statistics or Open Elective	DEC200: Explore
MAT281: Calculus I	MAT285: Calculus II
YEAR 2: EVEN YEARS	
FIRST YEAR FALL - 16 credit hours	**FIRST YEAR SPRING - 16 credit hours**
CHM231+L: Organic Chemistry I	CHM232+L: Organic Chemistry II
ENG142: Rhetoric and Academic Writing	CHM481+L: Instrumental Analysis
CHM281+L: Analytical Chemistry	DEC200: Explore
MAT281: Calculus I	MAT285: Calculus II

YEAR 3: EVEN YEARS	
FIRST YEAR FALL - 17 credit hours	**FIRST YEAR SPRING - 17 credit hours**
CHM281+L: Analytical Chemistry	CHM481+L: Instrumental Analysis
NAT130: Foundations of Healthy Living	CHM450+L: Physical Chemistry
CHM/BIO/MAT Elective	DEC300: Connect
DLT101: Digital Literacy and Technology Readiness AND MAT273: Applied Statistics (if still needed)	ENG142: Rhetoric and Academic Writing
	Internship/CHM370: Experimental Research Design
YEAR 3: ODD YEARS	
FIRST YEAR FALL - 17 credit hours	**FIRST YEAR SPRING - 17 credit hours**
CHM/BIO/MAT Elective	CHM411+L: Biochemistry
PHY211+L: Physics I	PHY212+L: Physics II
DLT101: Digital Literacy and Technology Readiness	DEC300: Connect
NAT130: Foundations of Healthy Living AND MAT273: Applied Statistics (if still needed)	Internship/CHM370: Experimental Research Design
	COM130: Introduction to Speech Communication

YEAR 4: EVEN YEARS	
FIRST YEAR FALL - 13 credit hours	**FIRST YEAR SPRING - 13 credit hours**
Internship/CHM370: Experimental Research Design	CHM450+L: Physical Chemistry
CHM/BIO/MAT Elective	DEC400: Impact
HIS201/ENG201/PHI110/ART210/CUL210	CHM/BIO/MAT Elective
	Open Elective
YEAR 4: ODD YEARS	
FIRST YEAR FALL - 14 credit hours	**FIRST YEAR SPRING - 14 credit hours**
CHM/BIO/MAT Elective	CHM411+L: Biochemistry
Internship/CHM370: Experimental Research Design	DEC400: Impact
HIS201/ENG201/PHI110/ART210/CUL210	CHM/BIO/MAT Elective

Testing into MAT095 (Foundations of College Mathematics)

YEAR 1	
FIRST YEAR FALL - 14 credit hours	**FIRST YEAR SPRING - 14 credit hours**
BIO120+L: General Biology I	COM130: Introduction to Speech Communication
MAT095: Foundations of College Mathematics	MAT181: College Algebra
ENG141: Rhetoric & Research Writing	BIO121+L: General Biology II
DEC100: Engage	DLT101: Digital Literacy& Technology Readiness

YEAR 2	
FIRST YEAR FALL - 14 credit hours	**FIRST YEAR SPRING - 15 credit hours**
CHM131+L: General Chemistry I	CHM132+L: General Chemistry II
NAT130: Foundations of Healthy Living	ENG 142: Rhetoric & Academic Writing
DEC200	MAT275: Precalculus
PHY211+L: Physics I	PHY212+L: Physics II

YEAR 3: ODD YEARS	
FIRST YEAR FALL - 16 credit hours	**FIRST YEAR SPRING - 15 credit hours**
CHM231+L: Organic Chemistry I	CHM232+L: Organic Chemistry II
CHM/BIO/MAT Elective	Open Elective
Optional: Applied Statistics or Open Elective	DEC300: Connect
MAT281: Calculus I	MAT285: Calculus II
YEAR 3: EVEN YEARS	
FIRST YEAR FALL - 17 credit hours	**FIRST YEAR SPRING - 16 credit hours**
CHM231+L: Organic Chemistry I	CHM232+L: Organic Chemistry II
CHM/BIO/MAT Elective	DEC300: Connect
CHM281+L: Analytical Chemistry	CHM481+L: Instrumental Analysis
MAT281: Calculus I	MAT285: Calculus II

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YEAR 4: EVEN YEARS	
FIRST YEAR FALL - 15 credit hours	**FIRST YEAR SPRING - 14 credit hours**
CHM281+L: Analytical Chemistry	CHM481+L: Instrumental Analysis
CHM/BIO/MAT Elective	CHM450+L: Physical Chemistry
MAT273: Applied Statistics (if still needed)	DEC400: Impact
Open Elective	Internship/CHM370: Experimental Research Design
YEAR 4: ODD YEARS	
FIRST YEAR FALL - 13 credit hours	**FIRST YEAR SPRING - 16 credit hours**
CHM/BIO/MAT Elective	CHM411+L: Biochemistry
Open Elective	DEC400: Impact
HIS201/ENG201/PHI110/ART210/CUL210	Internship/CHM370: Experimental Research Design
MAT273: Applied Statistics (if still needed)	Open Elective

YEAR 5: EVEN YEARS	
FIRST YEAR FALL - 13 credit hours	**FIRST YEAR SPRING - 13 credit hours**
Internship/CHM370: Experimental Research Design	CHM450+L: Physical Chemistry
CHM/BIO/MAT Elective	DEC400: Impact
HIS201/ENG201/PHI110/ART210/CUL210	CHM/BIO/MAT Elective
	Open Elective
YEAR 5: ODD YEARS	
FIRST YEAR FALL - 14 credit hours	**FIRST YEAR SPRING - 14 credit hours**
CHM/BIO/MAT Elective	CHM411+L: Biochemistry
Internship/CHM370: Experimental Research Design	DEC400: Impact
HIS201/ENG201/PHI110/ART210/CUL210	CHM/BIO/MAT Elective
Open Elective	Open Elective

What if I want to be an environmental scientist?

YEAR 2	
FIRST YEAR FALL	**FIRST YEAR SPRING**
BIO211+L: Anatomy and Physiology	SOC101: Principles of Sociology
BIO250: Ecology and Evolution	

YEAR 3	
FIRST YEAR FALL	**FIRST YEAR SPRING**
CHM335+L: Inorganic Chemistry OR CHM325: Biogeochemistry	MAT273: Applied Statistics II

YEAR 4	
FIRST YEAR FALL	**FIRST YEAR SPRING**
CHM335+L: Inorganic Chemistry OR CHM325: Biogeochemistry	

What if I want to be a doctor? Plans only apply to those who test into MAT 181 or higher.

YEAR 1 (REQUIRED)	
FIRST YEAR FALL	**FIRST YEAR SPRING**
BIO120+L: General Biology 1	BIO121+L: General Biology 2

YEAR 2 (REQUIRED)	
FIRST YEAR FALL	**FIRST YEAR SPRING**
BIO211+L: Anatomy and Physiology 1	BIO222+L: Anatomy and Physiology 2

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

YEAR 4 (RECOMMENDED)	
FIRST YEAR FALL	**FIRST YEAR 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 1 (REQUIRED)	
FIRST YEAR FALL	**FIRST YEAR SPRING**
BIO120+L: General Biology 1	BIO121+L: General Biology 2

YEAR 2 (REQUIRED)	
FIRST YEAR FALL	**FIRST YEAR SPRING**
BIO211+L: Anatomy and Physiology 1	BIO222+L: Anatomy and Physiology 2

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

YEAR 4 (RECOMMENDED)	
FIRST YEAR FALL	**FIRST YEAR 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/Ph.D. pathway)?

YEAR 3	
FIRST YEAR FALL	**FIRST YEAR SPRING**
SCS300: Research Design	PSY101 Introduction to Psychology

YEAR 4	
FIRST YEAR FALL	**FIRST YEAR SPRING**
MAT373: Applied Statistics II	ENG301: Professional Communication

Can I choose a minor?

MINOR OPTIONS			
MATH		COMPUTER SCIENCE	
COURSE NAME	CREDITS	COURSE NAME	CREDITS
MAT385: Calculus 3	3	CST155: Introduction to Operating Systems	3
MAT387: Differential Equations	3	CST201: Introduction to Programming	3
MAT396: Linear Algebra	3	CST230: Networking Fundamentals	3
One MAT elective (300/400)	3	CDS244: Cybersecurity	3
		CST280: Database 1	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.

DESIGNATION OPTIONS			
MANAGEMENT		STATISTICAL ANALYSIS	
COURSE NAME	CREDITS	COURSE NAME	CREDITS
ACC210: Financial Accounting	3	MAT373: Applied Statistics 2	3
MKT151: Introduction to Marketing	3	MAT396: Linear Algebra	3
MGT201: Management of Organizations	3	MAT376: Statistics	3
MGT359: Small Business Management	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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