

# College of *Science, Engineering and Technology*



Pre-Health Programs

FIND YOUR PURPOSE

GRAND CANYON  
UNIVERSITY®

PRIVATE. CHRISTIAN. AFFORDABLE.

WHY PURSUE



## PRE-MED AT GCU?

Our curriculum establishes a strong foundation in the sciences as students begin their journey toward professional careers in the health care industry. Our biology degree programs prepare students for various graduate health care programs at schools such as medical (MD and DO), dental, podiatry, optometry, veterinary, pharmacy, physical therapy, occupational therapy and physician assistant school.

Biology programs are designed to match common graduate school prerequisite coursework, rendering students eligible to apply for graduate school programs all across the country. Moreover, science coursework is designed to align with topics tested on graduate school entrance exams. Our science coursework matches the core science topics tested on the following examinations: Medical College Admission Test (MCAT), Dental Admission Test (DAT), Optometry Admission Test (OAT), Pharmacy College Admission Test (PCAT), etc.

Since GCU is a teaching university, our full-time faculty members focus first on teaching. This means that our professors, not instructional or graduate assistants, deliver every single lecture inside the classroom. Our faculty are experts in their fields and many also possess clinical degrees. GCU also has state-of-the-art classroom and lab facilities. Our science lab facilities have been built within the past five years, equipped with modern lab machinery and technology in two buildings dedicated to STEM learning.

**“The programs are top-notch and produce very successful students in the workforce. GCU’s faculty is fantastic; they are always helping students and know everyone’s name.”**

— David Ghobrial, *alumnus '17, BS in Biology with an Emphasis in Pre-Medicine*

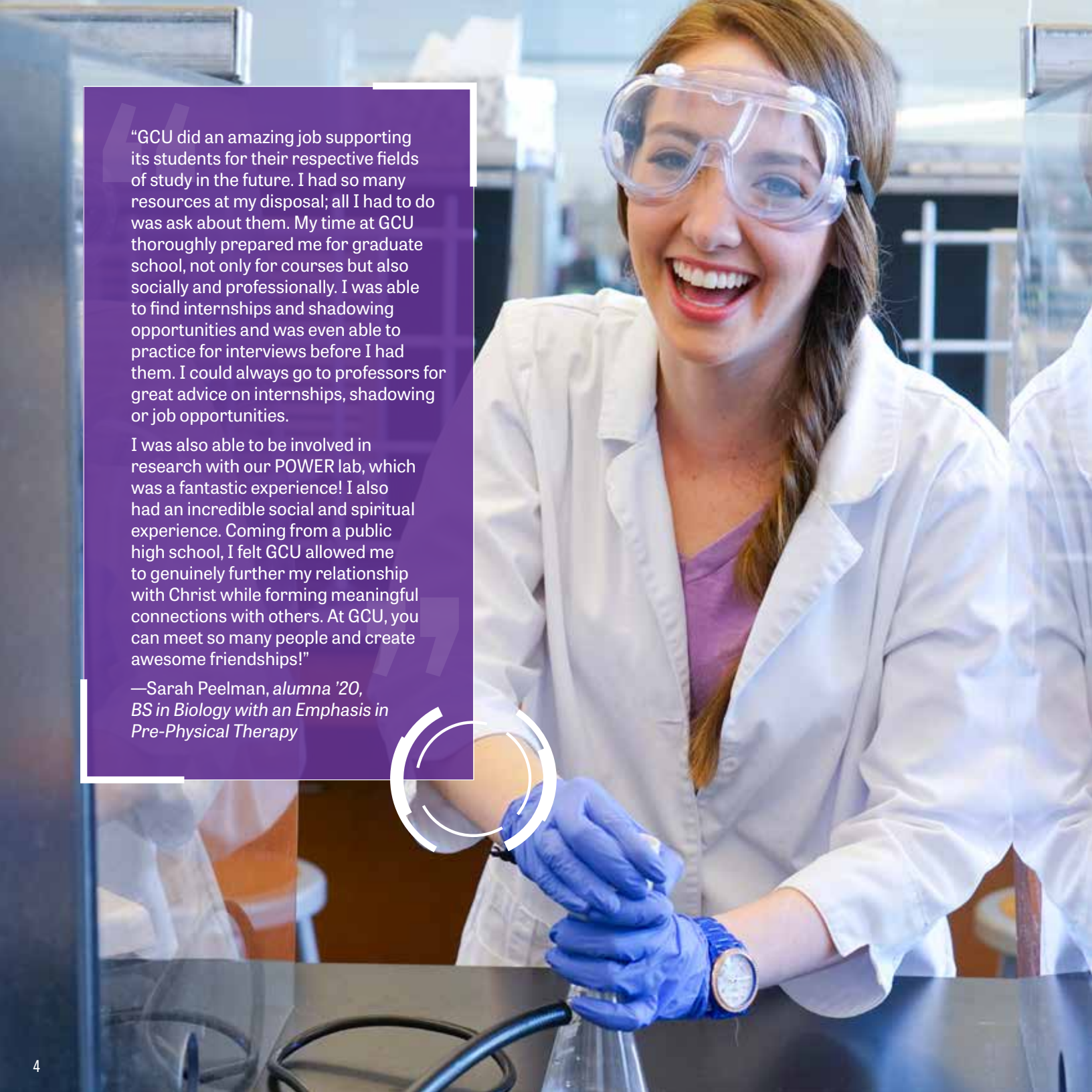




# IS PRE-HEALTH

## »»»»»»»» *FOR ME?*

Pre-medicine attracts students who are eager to help people while achieving what many consider the pinnacle of accomplishment as a health care provider. The first step on the educational path is to master the sciences: biology, chemistry, physics, organic chemistry, anatomy/physiology and more. GCU prioritizes teaching students these foundational sciences.

A young woman with brown hair in a braid, wearing a white lab coat, clear safety goggles, and blue nitrile gloves, is smiling broadly in a laboratory setting. She is holding a glass flask. The background shows laboratory equipment and another person in a lab coat.

“GCU did an amazing job supporting its students for their respective fields of study in the future. I had so many resources at my disposal; all I had to do was ask about them. My time at GCU thoroughly prepared me for graduate school, not only for courses but also socially and professionally. I was able to find internships and shadowing opportunities and was even able to practice for interviews before I had them. I could always go to professors for great advice on internships, shadowing or job opportunities.

I was also able to be involved in research with our POWER lab, which was a fantastic experience! I also had an incredible social and spiritual experience. Coming from a public high school, I felt GCU allowed me to genuinely further my relationship with Christ while forming meaningful connections with others. At GCU, you can meet so many people and create awesome friendships!”

—Sarah Peelman, alumna '20,  
BS in Biology with an Emphasis in  
Pre-Physical Therapy

# BIOLOGY DEGREES



## Bachelor of Science in Biology

The college offers four biology degrees, each with a different area of emphasis. Students can select among the following areas of emphasis: Pre-Medicine, Pre-Pharmacy, Pre-Physical Therapy and Pre-Physician Assistant.

It is important to understand that these biology degrees are pre-professional programs. This means that they prepare students for professional school that follows undergraduate studies. Professional school options include medicine, dental, optometry, podiatry, veterinary, pharmacy, physical therapy, occupational therapy, physician assisting and more.

## Emphasis in Pre-Medicine

Readies students to advance into medical school or allied health graduate programs. Courses include the foundational sciences:

- ▶ Biochemistry
- ▶ Biology
- ▶ General chemistry
- ▶ Organic chemistry Physics

## Emphasis in Pre-Pharmacy

Prepares students to apply for graduate-level pharmacy school programs. This program coursework includes:

- ▶ Interpersonal and intercultural communication skills
- ▶ Current theories and practices of pharmacology
- ▶ Preparing students for the Pharmacy College Admission Test (PCAT).

## Emphasis in Pre-Physical Therapy

Provides specialized coursework designed to prepare students for graduate physical therapy or occupational therapy programs. Areas of study include:

- ▶ Biological, exercise and social sciences
- ▶ Psychological and physical components of health
- ▶ Wellness and therapeutic intervention

## Emphasis in Pre-Physician Assistant

Provides a multi-disciplinary foundation, tools and skills necessary to apply for a graduate-level physician assistant (PA) program. Areas of study include:

- ▶ Biological, exercise and social sciences
- ▶ Psychological and physical components of health
- ▶ Wellness and therapeutic intervention

# PRE-HEALTH >>>>>>>>>

## AND SCIENCE

### DEGREES

*GCU Molecular Biology students presented at the Boston Bacterial Meeting, organized by Harvard University in 2020.*

**“I loved creating a presentation for it because I think it gave me a deeper understanding of everything we are working on. People say that the best way to learn something is to teach it. ... Second, the talks that I was able to watch were really interesting. They really inspired me and made me excited about research.”**

— Vianna Mulholland, *BS in Biochemistry and Molecular Biology*

**“The thing about nutrition that I love is that there's not a single person it doesn't apply to, “Everyone has to eat, so it applies to everybody on a personal level.”**

— Courtney Baker, *Professor and Director of Nutrition and Dietetics, 2020*

### **Bachelor of Science in Chemistry**

Provides a broad background in chemical sciences and interdisciplinary curriculum conformed to American Chemical Society (ACS) guidelines. The domains and competencies cover topics including:

- ▶ Organic, Analytical, Environmental, Physical, Inorganic chemistry, and Biochemistry

### **Bachelor of Science in Exercise Science with an Emphasis in Sports Performance**

Provides students with the knowledge to help improve performance in sports and fitness-related activities for a wide variety of populations including athletes. Areas of focus include:

- ▶ Anatomy
- ▶ Kinesiology
- ▶ Physiology

### **Bachelor of Science in Nutritional Sciences**

Prepares students for graduate studies and/or careers in a wide range of fields that utilize nutritional principles. Students will demonstrate competency in the domains of:


- ▶ Food science
- ▶ Biochemistry
- ▶ Physiology



# GAIN A COMPETITIVE EDGE

## CADAVER LABS

GCU is one of few undergraduate institutions in the nation that have human cadavers accessible to undergrad students. These cadavers allow students to learn skills they need for medical school. At GCU, our undergraduate students study human cadavers for a full academic year as part of our biology programs. Students will work hands-on with our human cadavers when studying anatomy and physiology. These cadaver experiences help to give our students a competitive edge when applying for medical school.

 *In addition to studying cadavers in the classroom, students are encouraged to gain additional experience through extracurricular involvement.*







# MASTERING ANATOMY PROGRAM (MAP)

Students can additionally apply to the Mastering Anatomy Program (MAP), a unique co-curricular program designed to give undergraduate students graduate-level cadaver dissection experience. Upon completion of MAP, students earn college-level graduation honors and a medallion to wear at commencement. The MAP program is taught on a graduate level where students who complete this program will be prepared for medical school.

*As featured in the College of Science, Engineering and Technology's BRAIN STEM blog – "A Look Inside GCU's Cadaver Lab"*

**"Some of my most memorable moments at Grand Canyon are from the days when people from different schools would visit to learn about human anatomy in our cadaver labs. Getting to engage with these students and participating in the Mastering Anatomy Program (MAP) have been especially helpful. MAP was also beneficial because it exposed me to different research opportunities and hands-on learning with the cadavers."**

— Enrique Mighty, *Class of 2023, BS in Psychology with a Minor in Pre-Medicine*

# RESEARCH >>>>>>>>>

## AND DESIGN

# PROGRAM

The Research and Design Program (RDP) gives students the opportunity to get hands-on research experience. Dozens of faculty-led research projects take place every semester in a vast range of disciplines.

To support these researchers, several labs have been created and equipped with cutting-edge equipment.

The Research and Design Program's goal is to fund promising and innovative projects to give students valuable research experience, enhance GCU's STEM programs and offer opportunities for faculty development and scholarship. Underclassman and transfer students alike are welcome to join current research projects.

Student Ajeane Cotton received an award for her undergraduate presentation at the American Society for Microbiology branch conference in Flagstaff, AZ, spring of 2019.

**"My experience with Grand Canyon University's Research and Design Program has been one of the best academic experiences. Through the RDP group, I was able to present at the American Society for Microbiology conference. It was an unforgettable experience, as I never imagined being in the same room with some of the best microbiologists in the field, let alone presenting in front of them!"**

— Ajeane Cotton, fall '20, BS in Biochemistry and Molecular Biology





The POWER Lab is one of the different labs under the RDP Program and stands for Performance Optimization, Wellness and Exercise Research. It is designed to contribute to research in the areas of health, nutrition, kinesiology, biomechanical analysis, sports performance and cognitive strength.

What's also important about the project is that GCU's undergraduate students not only have the opportunity to do research – something many students don't get to do until graduate school – they also can become published authors on academic papers.

**“They’re getting a really good opportunity. I, as a student, didn’t get to be an author on a paper. The focus is different here. We want the students to get authorship.”**

— Dr. Zachary Zeigler, *professor in the College of Science, Engineering and Technology*

**Read more about Dr. Zeigler and his passion for promoting the benefits of daily exercise here:**



# INTERNSHIPS, >>>>>>>>

## JOBS AND VOLUNTEER OPPORTUNITIES

Many of our students pursue internship experiences across the valley, including:\*

### MEDICAL

- ▶ Mayo Clinic Scottsdale
- ▶ Phoenix Children's Hospital
- ▶ St. Joseph's Hospital and Medical Center
- ▶ Banner University Medical Center Phoenix
- ▶ St. Vincent de Paul Clinic

### RESEARCH

- ▶ Translational Genomic Research Institute (TGEN)
- ▶ Helios Scholars
- ▶ Ivy Fellowship
- ▶ Barrow Neurological Institute
- ▶ Southwest Autism Research and Resource Center (SARRC)

### EXERCISE SCIENCE

- ▶ EXOS
- ▶ Fischer Institute
- ▶ Arizona Cardinals
- ▶ San Francisco Giants

\*This information is self-reported.





## **MEDICAL AND GRADUATE SCHOOL ACCEPTANCES\***

Interested in where our students attended graduate school? Here is a list of institutions where students have been accepted into medical school, dental school, pharmacy school, etc.

- ▶ A.T. Still University
- ▶ Franklin Pierce
- ▶ Lake Erie College of Osteopathic Medicine
- ▶ Loma Linda University
- ▶ Midwestern University
- ▶ Northern Arizona University
- ▶ Oregon Health and Science University
- ▶ The University of Arizona College of Medicine Phoenix and Tucson
- ▶ University of California, Davis
- ▶ University of Chicago
- ▶ University of Colorado
- ▶ University of Nevada, Las Vegas
- ▶ University of Washington
- ▶ Western Reserve University

\*Self-reported data.





# WHAT IS STUDYING PRE-HEALTH LIKE AT A CHRISTIAN UNIVERSITY?

Our students embark on their educational journey with a divine purpose and faith that serves as the starting point for learning. Our strong devotion to our faith allows us to unite the knowledge of God and the universe, as well as deepen understanding to advance inquiry.

With a strong foundation in faith, our students often present as the ideal clinician candidate: well versed in science and exploration, a strong critical thinker and – most importantly perhaps – humble and deeply caring with a servant’s heart. We seek to produce students who will go forth in the world with positive change as their goal and servant leadership as their means.

## COEXISTENCE OF FAITH AND SCIENTIFIC EXPLORATION

Our learning environment encourages fertile context for science-faith inquiry that is open to the analysis of scientific and theological interpretations. Our Christian beliefs provide a moral and ethical guide in our search, leading us to celebrate scientific discoveries. Our faith is not to stifle research, suppress dialogue or inhibit scientific exploration. We respect and welcome different perspectives and believe in intellectual discourse. In a spirit of humility and service, we will better understand our world.

# ON-CAMPUS STATE-OF-THE-ART

## ▶▶▶▶▶ TECHNOLOGY FACILITIES

*GCU has built several state-of-the-art science buildings dedicated to STEM learning. These buildings serve as innovative learning grounds for science students to gain hands-on experience and develop skills they will use in their future careers.*

### TECHNOLOGY BUILDING

This facility was built in 2015 and houses multiple science labs where students can use state-of-the-art technology to help them in their medical studies. This dynamic building has a wide diversity of labs including:

#### **Biology Labs**

The biology labs use compound light microscopes and dissecting microscopes to observe organisms both macroscopic and microscopic. Hands-on activities are used to help solidify difficult concepts like genetics and ecology.

#### **Microbiology Labs**

Microbiology labs focus within the realms of bacteria, viruses, fungi, and protozoa. Undergraduate coursework in microbiology serves as a foundation for advanced study, entry into the professional schools and employment in the biotechnology industries.

#### **Anatomy Labs**

The cadaver labs house deceased human bodies which have been donated to science. Beyond the normal anatomical nomenclature found in pictures of an atlas, this hands-on experience allows students to investigate the variable aspects of the individualized human body.

#### **Physics Labs**

Physics labs are specifically designed to develop holistic physics knowledge through hands-on projects and experiments. Our pre-health students have the opportunity to experience the study of matter and energy.

#### **Exercise Science Labs**

These rooms offer an introduction and reinforcement to the practical skills used for sports performance and health and wellness. Experience with industry-grade exercise science equipment provides students with the opportunity to develop skills.





## ENGINEERING BUILDING

This building is the largest academic building on campus. This four-story building is equipped with cutting-edge technology that includes sophisticated labs for research and engineering.

### Lopes Labs

Lopes Labs are collaborative learning spaces that help GCU students turn their ideas into a reality. Lopes Labs now include the GCU workshops which house a metal machining shop, a manufacturing center and a woodworking shop. This engaging and interactive environment enables students from all degree programs to work together to create projects of interest. The shop staff works full-time to train students on how to effectively utilize the machinery and abide by OSHA standards.

### Dedicated Research Laboratories

As part of our research and design program, several labs have been created and outfitted with cutting-edge equipment. Neuroscience, cellular and molecular biology, chemistry, environmental science, microbiology and many other disciplines are supported.

## NATURAL SCIENCES BUILDING

The fourth floor of this building is home to many science-focused labs, including:

### General Chemistry Labs

Students engage with chemistry first-hand to learn to create buffer systems, create solutions and dilutions of chemicals, handle acids and bases and explore quantitative analysis techniques.

### Biochemistry Labs

Biochemistry labs focus on the interaction of organic matter related to biological concepts and living organisms. Core techniques include micropipetting, amino acid or protein colorimetric assays, protein isolation or purification and DNA isolation and purification.

### Organic Chemistry Labs

These labs cover a systematic approach to the study of matter, namely the interaction of carbon-based materials. Objectives commence with the fundamentals for measuring physical properties and laboratory techniques for handling matter.

# SETTING

## STUDENTS UP

# FOR SUCCESS

GCU goes to great lengths to provide students with extensive resources, including:

- ▶ Academic and Career Excellence (ACE) Centers
- ▶ Collaborative learning classroom environments
- ▶ Professors with open-door policies
- ▶ Living and Learning Communities
- ▶ Student services counselors
- ▶ Chapel, The Gathering and Life Groups (Bible studies)

**“Being an athlete and a student leader on campus made consulting with my professors essential to my success as a student. Building mentor relationships has helped me not only with school and my medical school application, but with my volunteer and career opportunities as well. The best advice I could give any student who is interested in the medical field is to get to know your professors. Most were professionals in their field and know what it takes to get into medical school and work in their field.”**

— Jessa L. Deckwa, alumna '18, BS in Biology with an Emphasis in Pre-Medicine





## PRE-HEALTH AND GRADUATE ADVISORS

Our dedicated staff of student success specialists offer FREE professional advisement to engage students on their path toward applying for graduate level healthcare programs. The team provides activities to develop soft skills needed for graduate applications.

**Graduate school preparation services include:**

- ▶ One-on-one advising appointments
- ▶ Small group workshops
- ▶ Graduate school application assistance
- ▶ Letter of recommendation support
- ▶ Personal statement review
- ▶ Individual and group mock interviews

## GRADUATE SCHOOL PARTNERSHIPS

To assist students applying to graduate programs, GCU has partnerships with several institutions that can help increase a student's chances of interview and acceptance. Details of each partnership vary. Partnering schools include the following:

- ▶ **A.T. Still University:** *Mesa, AZ*
- ▶ **Lake Erie College of Medicine:** *Erie, PA; Greensburg, PA; Bradenton, FL*
- ▶ **Midwestern University:** *Glendale, AZ and Downers Grove, IL*

# CLUBS AND ORGANIZATIONS



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***There are many pre-health clubs and organizations available for students including the following:***

- ▶ American Student Dental Association (ASDA)
  - ▶ GCU Clinical Skills Club
  - ▶ Health Occupations Students of America (HOSA)
  - ▶ Honors STEMists
  - ▶ Occupational Therapy Club
  - ▶ Pre-Dental Society
  - ▶ Pre-Med Club
  - ▶ Pre-Physician Assistant Club
  - ▶ Physical Therapy Club
  - ▶ Pre-Vet Club
  - ▶ Student Wellness and Health Association (SWAHA)
- 

## **HOSA**

Health Occupations Students of America (HOSA) is an international student organization recognized by the U.S. Department of Education and the Health Science Education (HSE) Division of Association for Career and Technical Training. HOSA's two-fold mission is to promote career opportunities in the health care industry and enhance the delivery of quality health care to all people.

GCU's chapter of HOSA is one of the largest pre-health clubs on campus, comprised of students interested in health care professions. GCU AzHOSA also competes at the collegiate level in state and international competitions. GCU's vibrant HOSA chapter has over 4,500 members, with nearly 700 current students and an alumni family of over 3,500.

GCU HOSA gave students the opportunity to speak to Dr. Randon Hall about one of his patients in the hospital so they could offer their insights regarding the patient's injury.

**“It is inspiring to see students take the initiative like this because they could have easily just used the current situation (the pandemic) as an excuse to do less. I love the passion for learning, for getting better, for gaining experience. Those are the characteristics you want to see in someone pursuing medicine.”**

— Dr. Randon Hall, *orthopedic physician at Phoenix Children's Hospital*

## PRE-DENTAL SOCIETY

The Pre-Dental Society provides resources and guidance for students preparing for a career in dentistry. It inspires members to achieve their full potential as pre-dental students and members of the community, encouraging one another to have a foundation built on Christ. Students have the chance to be involved with head and neck dissection, events hosted by local dental schools, speaker events with different dental specialists and admission counselors and opportunities to connect with other pre-dental students at GCU.

## GCU CLINICAL SKILLS CLUB

GCU Clinical Skills Club offers reliable services and opportunities to students who need assistance with their studies or want to develop their skills for graduate program placement. Under the direction of David Jackson, MD, the GCU Clinical Skills Club offers events for students to learn practical skills in health care including suturing, vitals, EKG, CRP, basic life support and more.

## PHYSICAL THERAPY CLUB

The Physical Therapy Club is a welcoming community for interested pre-physical therapy students. The club provides students with a strong community that seeks to enrich its members. The club not only introduces students to the profession of physical therapy, but also provides students with networking experiences.

**“Every day I feel this weird sense of fulfillment helping people; it’s like selfish almost, it’s this amazing sensation. Just a few days ago I was helping a patient walk out for the first time. It’s such a great feeling. All this education and everything I’ve learned, I’m able to apply it to help other people better their lives.”**

— Samantha Bedore

## STUDENT WELLNESS AND HEALTH ASSOCIATION (SWAHA)

The Student Wellness and Health Association (SWAHA) is a group of exercise science students who promote physical activity to help students maintain a healthy lifestyle during college. SWAHA executes their mission through the Health Intelligence and Programming (HIP) Clinic. The HIP Clinic collects data on a patient’s physical activity level during each health assessment. Patients receive testing that they would not otherwise get without going to a medical specialist. These additional tests specifically measure physical activity levels and include aortic blood pressure, body fat composition and maximal oxygen consumption (VO2 max) tests. What makes this group special is that exercise science students manage the clinic, oversee the patient referral process, run tests and collect measurements.

**➤ GCU offers many more on-campus clubs and societies!**



# PRE-HEALTH ▶ *Top 5's*

- ▶ **Cadaver Labs** *pg. 8*
- ▶ **Mastering Anatomy Program** *pg. 9*
- ▶ **Research and Design Program** *pg. 10*
- ▶ **Medical and Graduate Schools** *pg. 13*
- ▶ **Pre-Health Graduate Advisors** *pg. 19*

# NEXT *steps:*

- 1 ▶ Apply for free at [gcu.edu/ApplyNow](https://gcu.edu/ApplyNow)
- 2 ▶ Upload your transcripts and submit your test scores
- 3 ▶ Upon acceptance, visit campus  
(all-expenses paid\* programs available)
- 4 ▶ Register for courses and pay the registration deposit



*To learn more about Grand Canyon University, undergraduate programs offered on campus, available scholarships and more, contact an admissions counselor.*

**855-428-7884**  
**[gcu.edu/CampusAdmissions](https://www.gcu.edu/CampusAdmissions)**

\*Restrictions for travel reimbursement may apply.

Grand Canyon University is accredited by the Higher Learning Commission (hlcommission.org), an institutional accreditation agency recognized by the U.S. Department of Education. Please note, not all GCU programs are available in all states and in all learning modalities. Program availability is contingent on student enrollment. Pre-licensure nursing students who begin or resume attendance in Fall 2020 and beyond will be ineligible to utilize most GCU institutional aid/scholarships for tuition and fees once accepted into the clinical portion of the program. Important policy information is available in the University Policy Handbook at <https://www.gcu.edu/academics/academic-policies.php>. The information printed in this material is accurate as of JANUARY 2022. For the most up-to-date information about admission requirements, tuition, scholarships and more, visit [gcu.edu](https://www.gcu.edu). ©2022 Grand Canyon University 22GTR0005