TOUCHING THE FUTURE THROUGH

HEALTH CAREERS
@ WAYLAND
JOIN A TEAM OF PROFESSIONALS
MAKING A LASTING DIFFERENCE

Many students who come to Wayland are interested in pursuing careers in the health professions. If you are interested in becoming a physician, dentist, physical or occupational therapist, optometrist, physician assistant, public health specialist, or nurse, the hard work and intentional preparation for these careers begins long before you enter a professional school.

Admission into medical school or other professional programs is a very competitive process involving a number of selection factors. Among these factors are grades, standardized exams like the MCAT, recommendations, and extracurricular activities such as volunteer experiences. To be successful, students must make themselves stand out from the crowd.

The Pre-Health Program at Wayland is an intentional program designed to give students every opportunity to build into themselves the qualities, skills and knowledge to excel in health professional programs. We know that you have choices as you consider which university to attend as you prepare for a career in the health professions, and we hope that you will choose Wayland Baptist University.

As you make this decision, there are a number of important factors to consider that make Wayland different.

- Christ-Centered
- Small Class Sizes
- Personal Attention from the Faculty Members
- Enrichment-Driven Pre-Health Programs

The pre-health program is an intentional program designed to give students every opportunity to build the qualities, skills and knowledge to excel.

Although we could outline and describe all of the programs we have as a part of our pre-health program, perhaps the best, and the most convincing, illustration of what makes Wayland special comes from recent graduates who were a product of the Wayland experience. A few of their stories are shared on these pages.

I look forward to discussing your future plans and how we can help.

Adam J. Reinhart, Ph.D.
Pre-Health Coordinator
Professor of Biology
and Chemistry

The Wayland V Difference:

- Christ-Centeredness
- Small Class Sizes
- Personal Attention from Faculty Members
- Enrichment-Driven Pre-Health Programs
- Undergraduate Research Opportunities
- Leadership Opportunities
- Labs Taught by Faculty Members
- MCAT/PCAT/DAT/GRE Preparation Workshops
- Interview Skills Workshops
- Mission Opportunities Integrated with Coursework

Interview Skills Workshops
Missions Opportunities Integrated into Academics

Just the FAQs

Q: Is there a Pre-Med major?

A: No. While a high percentage of our biology and chemistry majors are intending on pursuing careers in the health professions there is not a “Pre-Med” degree. Most of our students find a degree in Biology, Chemistry or Molecular Biology will best prepare them for professional schools.

Q: What are the major decision factors of getting into a health professional school? Health professional schools seek individuals who have a high probability of success in their particular program. This is determined by a number of factors like a student’s GPA,
Preparing for medical school requires intense academic study, a course load that most students shun and a focus on the greater future goal: passing the MCAT test and getting accepted for graduate study.

But while these are important aspects of the undergraduate education, what sets Wayland Baptist University apart for many students who choose the pre-medical path is the faculty mentoring and encouragement.

Martin Ortega and Vanessa Carey Schmidt learned that firsthand while at WBU.

For Schmidt, Wayland’s science faculty were instrumental in helping her become what she is today: a first-year medical student at Texas Tech University Health Sciences Center. Her journey, however, was somewhat out of the ordinary.

Having earned her undergraduate degree in cross-cultural ministry at Oklahoma Baptist University in 2005, Schmidt said a mission trip to the Philippines shortly after graduation spurred her to pursue a career in medicine. While on the trip, she traveled for a week with a mobile medical team and enjoyed the chance to serve an underserved population and help those in need.

“That week, everything made sense for me,” she said. “It was a career that brought together everything I loved: it takes hard work, it’s challenging and it’s devoted to the service of others.”

Vanessa knew that meant more school ahead to complete the requisite courses for medical school, and she began researching her options. At the same time, her brother Jonathan was about to become a freshman at Wayland, an area of great interest for her personally.

“Wayland did an absolutely phenomenal job of preparing me academically, but they also pushed me. It groomed me for a lifestyle that medical school requires,” she said. “They like to challenge and prepare you. They push you hard because they want the best for you.”

Schmidt said her goal is to practice pediatrics, hopefully in an area where she can put her cross-cultural ministry training to good use as well. She said short-term medical missions are likely in her future.

While the rigors of medical school can be grueling, as Schmidt is now learning, the rewards in the future keep her focused and strong.

“When I get overwhelmed by the work or buried under a mountain of information, people will crop up in my life that bring it all together for me,” she said.

Ortega’s story is a bit more traditional, coming to Wayland from Midland as a freshman, bent on studying for a career in healthcare but thinking pre-med a bit out of his league. That first year, his WBU faculty advisors led him to apply for a state-wide scholarship opportunity open to only a select few students. He learned in the spring of his acceptance to the Joint Admissions Medical Program, a once-in-a-lifetime chance to attend specialized medical training experiences in the summers away from Wayland and culminating in guaranteed admission to one of Texas’ medical schools.

Fast forward about six years and Ortega has come full circle to some degree. He earned his WBU degree in 2007 and is a third-year medical student at Texas Tech, currently doing his rotations in his hometown of Midland and in nearby Odessa. He’ll spend the year doing six 8-week rotations in specializations like psychiatry, obstetrics and gynecology, surgery and internal medicine, then will spend year number four doing three more rotations before being allowed to choose areas to do further rotations, honing his specialization area while he applies for residency programs.

Ortega said it was a dream to return to Midland for this portion of his education, an opportunity that only presented itself this year for Tech med students.

“I’ve always wanted to eventually come back to Midland, so it’s great to do it sooner than later,” Ortega said, noting that with only 18 students in the area, he enjoys the more personal attention they are able to receive. He also hopes he has made an impression on local program coordinators, since he’d love to stay in Midland/Odessa for his residency in family medicine.

Even after two years of coursework at Tech and a semester of rotations, Ortega said his passion for family medicine – and setting up his own practice in his hometown someday – has not wavered, though he has enjoyed the exposure to the various facets of the medical field.

Throughout his medical journey, Ortega has spoken highly of his Wayland experience and the faculty who nurtured him and challenged him on the road to the M.D. He said Wayland faculty make for a quality experience both in the classroom and in advisory roles.

“They definitely kept up with me and advised me on courses, and they kept me focused and centered,” he said. “They've set me up for an opportunity to succeed.”

Ortega also lauded his WBU classmates on their own successes and the caliber of academic talent.

Medical school students formed good study foundation at WBU

She started at WBU with her brother, needing two years to complete the class work, prepare for the MCAT exam and complete the lengthy medical school application process. Along the way, she said the science department was pivotal in challenging her and preparing her for the next chapter. Schmidt also lauded the volunteer community service opportunities afforded her at Wayland, an area of great interest for her personally.

Q: What does the Health Careers program at Wayland offer me?

◆ Personalized Attention. You will not get lost in a crowd at WBU.

◆ In Class. The largest biology or chemistry classes have 30 or less students, with upper-level courses often having 8-15 students. The laboratory portions of the courses are taught by professors, not graduate assistants.

◆ Advising. Your academic advisor will be a faculty member, not an office. Most of our pre-health students are advised by our Health Careers Coordinator. Together, you and your advisor will lay out a schedule of courses, shadowing, volunteer, work, and research opportunities designed to give you every possible opportunity for a successful application to your chosen professional school. You can also expect honest assessments of your progress toward your goals.

◆ Accountability. You and your academic advi-
Physician’s assistants find rewarding careers

From early in their Wayland Baptist University careers, Leigha Messer and Amber Williams have been friends and roommates. They also shared a major, and after graduating from WBU, attended graduate school for the same degree, both earning the designation of certified physician’s assistant from Texas Tech University’s Health Sciences Center in August 2009.

Though they don’t work together or room together now, the two work for Plainview healthcare facilities in roles they say are incredibly rewarding.

Messer, a native of Amarillo, works with Drs. Ruth and David Wright at the Covenant Healthcare Center. Williams is employed with the Family Medical Care center.

“From before I can even remember, I wanted to be a doctor,” Messer said with a smile. “Through high school I knew I would be in healthcare but I wasn’t sure what specific area.”

When she and Williams became best friends, she got to know Williams’ sister Krysta, who had just been accepted to PA school at Tech, so she began looking more into that option rather than medical school.

“I liked the independent nature and autonomy of diagnosing patients, but medical school is much longer and more demanding,” said Messer. “I still get to diagnose and treat patients, but I have a supervising physician that reviews my cases and signs off on all the charts.”

Williams said she always had an interest in science but wasn’t sure what exact path she would take. She followed her sister to Wayland and thought pharmacy might be her leaning, but after hearing about Krysta’s experiences, chose to pursue the PA route as well.

Since both girls were accepted to Tech, they chose that program so they would have someone with whom to share the experience. Though both say they prefer to study alone, having a friend at PA school with them helped immensely. They started in the summer of 2007.

“It was definitely a God thing to do this together,” Amber laughs. “I don’t think I could have made it without that support system. Leigha is like a sister to me after all we’ve gone through.”

Throughout classes in Midland and rotations in Amarillo, both decided that family practice was the best fit for a specialty. The process of PA school was admittedly grueling, requiring intense study during the 15 months of coursework and doing a set of clinical rotations similar to what MD candidates do.

Toward the end of their education, both wanted to practice in a smaller town close to home. And both have found their experiences treating the people of the Plainview area to be rewarding so far.

“Every day has been an affirmation of my call, reminding me that this is why I went through the six-and-a-half years of school,” Messer said.

“It’s such a good feeling to get up and look forward to going to work,” Williams said. “I like the people I work with.”

While settling into a work schedule has come easily for the pair, they credit most of their smooth sailing with the great education they received at Wayland.

“I didn’t feel unprepared at all. Wayland gave me a good, solid foundation for that next step,” Messer said. “In some areas I felt more prepared than my classmates.”

Williams added her agreement.

“It was good that we knew how to study and that really helped us (in PA school),” she said. “Anatomy and physiology with Dr. Vaughn Ross provided such a good foundation for how the body works.”

Both also lauded support and encouragement from Krysta, who works as a PA at Cogdell Clinic in Lockney, as helpful during their own educational journey.

“She gave us helpful information and hints on studying. She was a fountain of information, and I’ve even called her for some help at times lately,” Williams said. “She was our light at the end of the tunnel. We knew if she could do it, we could do it.”

“I loved my time at Wayland,” Amber added. “The professors were always there to help you with anything you needed.”

Q: What are the prerequisite requirements for my professional school? Each health professional school has different requirements, and students should contact schools of interest for specific prerequisites. In general, degree-requiring professional programs require:

- 8 hours of General Chemistry,
- 8 hours of Organic Chemistry,
- 14 hours of Biology,
- 8 hours of Physics,
- Statistics or Calculus, and
- 6 hours of English.

General prerequisites for other disciplines are listed in the course catalog.
Mission, service opportunities enrich learning

While challenging coursework and faculty membership are hallmarks of the Wayland Baptist University pre-health program, another distinction is benefiting students who feel called to the medical field with a heart for missions.

Trips organized through the Wayland Missions Center offer students from all academic disciplines the chance to visit various locations around the world and serve people in need. Special effort is made to match students with their particular career vision if possible, and to that end, several trips have featured a medical aspect allowing pre-health students the chance to pair their training and heart for God and others in far off places.

Colby Schneiderjan, a senior biology major at Wayland, and Sarah Flowers, a junior studying pre-nursing, were among others who traveled to Kenya, Africa, in the summer of 2009, spending two weeks running free medical clinics near Nairobi and Mombasa, partnering with area churches. During that time, the team treated nearly 3,000 people.

The camps were set up like a regular clinic. As patients checked in, they registered with their personal information. After having their vital signs checked, they would see the doctor, who diagnosed the problem and prescribed the appropriate medication. The patient would then visit the pharmacy area, where the medication was administered. Schneiderjan spent most of his time working in the pharmacy.

“For the most part, we treated everything we saw,” he said. “There was a lot of wound care that we treated for people who couldn’t do it themselves. They had a cut on their leg, or they wrecked their bike and they didn’t have the stuff to take care of themselves or the money, so they would come in and we would treat it.”

Schneiderjan also said they treated a large number of HIV patients.

“We would buy medicine every morning and re-stock what we had gone through the day before,” explained Schneiderjan, whose future career goal is to be an orthopedic surgeon. “The money went a long way, but we saw a lot of people in a very short period of time.”

After a couple of days working the camps, however, the group quickly realized the supplies they brought with them were not going to be enough. They raised some money among themselves then appealed to their home churches for funds they could use to purchase medication. The churches responded, raising several thousand dollars in a couple of days. The group was then able to purchase the medicine it needed to treat the patients.

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“arly things we started noticing,” he said. “For us, if we have a fever or cold, it’s not a big deal,” he said. “But the way HIV works, it breaks down the immune system and so a cold or fever to them could develop into pneumonia and could possibly kill them. They were very grateful for the cough syrups and the fever breakers because that was a big deal to them.”

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Flowers spent most of her time taking vital signs for the patients who came to the clinic, taking blood pressure, temperature and aspiration levels and helping with patient flow, sending the most critical cases to the doctors who worked with the team of students.

Initially, she said she felt disappointed she didn’t get to do more of the “dirty and dangerous” work, but she said God showed her how important her role was there.

“One woman and her baby came through, and she had 104 fever and malaria. It was near the end of the shift, and she wanted to take a photo of me with her baby,” she recalled. “It made me nearly cry; it was the most moving thing on the trip. It was like God said to shut up and be obedient to him.”

Flowers said she’s long known she wanted to do medical missions overseas, and the trip helped her confirm that call.

“I never felt at all that it wasn’t my home there. It was just meant to be, and God just reminded me this was where he wanted me. Africa is so full of love, even with the living conditions they have. The trip really solidified my call to missions in Africa and to emergency medicine in the boonies, and I hope to head back just as soon as I can,” said Flowers, noting that she would like to take her mother, who is an RN, along with her as well.

She noted that besides her basic pre-nursing requisite courses, she has picked up a few extras at Wayland that will help her once she gets on the foreign mission field as a nurse, such as parasitology.

She credited Dr. Rick Shaw, director of the Missions Center, with helping her not only get to Kenya but also for believing in her call enough to make it happen.

“If Dr. Shaw wouldn’t have told me I was going to Africa, there wouldn’t have been any way. He made all the difference in the world,” she said. “If I was at any other school, it simply wouldn’t have happened. This is something I’ve wanted to do for a while, so it’s a dream come true.”

Courses of Study at Wayland for Pre-Health Careers

Bachelor of Science Degree

Majoring in Biological Sciences

BIOL 1401-1402: General Biology I & II
BIOL 3402: Genetics
BIOL 3407: Ecology
Four hours from:
BIOL 3403: Developmental Biology

BIOL 4408: Cellular and Molecular Biology
Four hours from:
BIOL 3405: General Botany
BIOL 4400: Plant Taxonomy

BIOL 3404: Human Anatomy & Physiology
BIOL 3409: Human Anatomy & Physiology II
BIOL 3410: Microbiology
BIOL/GEOL 4407: Oceanography

Additional requirements:

CHEM 1401-1402: General Chemistry I & II
MATH 1306: Elementary Statistics
MSCI 2311: Scientific Computing
MSCI 3101: Faith and Science

Twelve hours from:
BIOL 3408: Human Anatomy & Physiology
BIOL 3409: Human Anatomy & Physiology II
BIOL 3410: Microbiology

Four hours from:
BIOL 3401: Invertebrate Biology
BIOL 3404: Vertebrate Biology
BIOL 4404: Parasitology
BIOL 4409: Conservation Biology
Trudeau finds calling in hospital pharmacy career

When life literally hangs by a thread of hope on a transplanted organ, patients want to make sure they’ve got the brightest and best medical staff on their side. Good thing the folks at Case Medical Center in Ohio have Raelene Trudeau nearby.

A native of Plainview and 2003 graduate of Wayland Baptist University, Trudeau is the pharmacy specialist for solid organ transplantation for the University Hospitals facility, working alongside a team of surgeons and others skilled in the craft of giving hope to families for whom a new organ is the last hope for a normal life.

Trudeau said the job is a dream for someone who loves the pharmacy world but still wants to maintain care of patients. Luckily, that description fits her to a tee.

The route to her current reality was pretty traditional... to a point. Trudeau graduated from Plainview High and began looking into schools, not thinking she wanted to attend the hometown university. A campus visit began to sway her in another direction.

“They genuinely seemed to care about us and what we would be doing. After that, I decided it was probably a good fit for me,” she said, noting that she earned a good scholarship that helped make WBU affordable.

“The professors really do care about the students, and we’re not just a number there. Drs. (Joel) Boyd, (Harold) Temple, and (Adam) Reinhart were all very helpful in shaping me for where I’d end up. They were a good support system.”

Trudeau said the mentorship of WBU faculty was instrumental in her path veering from the traditional retail pharmacy job into something few get to do. They helped her with internship opportunities, first at a retail outlet and later at Covenant Hospital Plainview, where she learned the patient interaction at a hospital setting was much more suited to her personality. Two special experiences were a summer biomedical research internship at The University of Oklahoma, and a summer at the Johns Hopkins anatomy institute, both priceless in her estimation.

After WBU, she attended Texas Tech University’s pharmacy school in Amarillo, graduating in 2007 with her Doctor of Pharmacy degree. She then chose to do a two-year residency at Barnes-Jewish Hospital in St. Louis, Mo., wanting more experience in the hospital setting though it was not required of pharmacy students.

Her first year was in general pharmacotherapy, followed by a year in the transplant area. She signed up for an additional rotation in transplantation, feeling her passion begin to take shape.

“I liked that the transplant area brings together critical care, internal medicine and other issues,” she said. “I knew I wanted to work in a hospital because you got to work with patients more on a one-on-one basis and with physicians and nurses as well, working on the medications they are taking.”

During her job hunt, armed with the valuable designation of Board Certified Pharmacotherapy Specialist, she found an opening at Case Medical Center and knew it would be the perfect fit. She started in August 2009 and has not been disappointed. Trudeau is one of a large team of professionals who work with transplant patients, from the physicians to dietitians and financial counselors.

A typical day involves morning rounds with the kidney specialists, the most active group at Case with about 400 patients on the waiting list. She reviews the patients’ medications, making sure there are no interactions and works on therapy options for the individuals. The afternoons are spent counseling patients being discharged, dealing with outpatient issues for previous transplant patients or those on waiting lists, reviewing their medications to ensure nothing will interfere with the transplant process once an organ is located.

Trudeau said while the hospital has had 20 patients admitted at one time, the number typically stays a little lower, with heart, lung, pancreas and liver transplant patients comprising a much smaller population than kidney patients.

“It is challenging every day, and some days more than I think I bargained for. But I do enjoy working with the patients, physicians and nurses every day,” she said.

While Trudeau has conquered many challenges through her schooling, residency and now her first official job, she said the foundation started back in those Moody Science Building classes at WBU.

“I felt prepared for everything,” she said. “The smaller classes provided more one-on-one help, and there was definitely someone there to talk to about school or other issues. They really did care about me.”

“In turn, it is Trudeau who gets to focus her attention and care on the patients who depend on the Case team for a normal life. It’s a role she now relishes.

“I think it’s fascinating to see patients who, for whatever reason, are just hanging on for transplants and are extremely sick beforehand,” she said. “Then to see them change from where life is really hard to living normal, healthy lives is so rewarding. One patient had a celebration of life, and we were invited out to that event. You really do become attached to them in a way.”

VITAL STATISTICS

**Bachelor of Science Degree**

**Majoring in Chemistry**

CHEM 1401-1402: General Chemistry I & II

CHEM 2402: Analytical Chemistry

CHEM 3403-3404: Organic Chemistry I & II

CHEM 4405-4406: Physical Chemistry I & II

Eight hours of chemistry electives

Additional requirements:

MATH 1306: Elementary Statistics

MATH 2306: Calculus I

MSCI 3101: Faith and Science

Eight hours from:

PHYS 1401-1402: General Physics I & II

PHYS 2401-2402: University Physics I & II

**Bachelor of Science Degree**

**Majoring in Molecular Biology**

BIOL 1401-1402: General Biology I & II

BIOL 3401-3402: Genetics

BIOL 3404: Developmental Biology

BIOL 4408: Cell and Molecular Biology

CHEM 4402-4403: Biochemistry I & II

Twelve hours from the following:

BIOL 3401: Invertebrate Biology

BIOL 3404: Vertebrate Biology

BIOL 3405: General Botany

BIOL 3408: Human Anatomy & Physiology
Knowing how the body works and moves and can be treated is not new territory to Dr. Randy Craig. He’s just more used to the bodies of canines, felines and horses than of humans.

But Craig got a new leash on life when he signed on as a part-time member of the biology faculty at Wayland Baptist University in 2007. He is now associate professor of biological sciences.

In his previous career, Craig was a veterinarian, and he practiced for more than 20 years, primarily in Mississippi and Alabama. Born in Plainview and raised in Tahoka, Craig was running a successful vet clinic in the Mississippi area, where he set up shop after earning his Doctor of Veterinary Medicine degree at Mississippi State University.

A meeting with his ailing father a few years back had him thinking about home more and considering the move back to Texas.

“My dad was sick, and I came out here to visit him. He asked me to take care of my mom and I knew I couldn’t do that from so far away,” he said, noting that his mother still lives in Tahoka. “I went back thinking that I should probably think about moving back and some point. In a few months, another vet came in out of the blue asking me if I would sell my clinic, and in two months, I had sold it and moved here six months later.”

Craig moved to the Plainview area in 2003, bought an old barn outside Petersburg and refurbished it into a home. Meanwhile, he had gotten to know some area veterinarians and was called to do surgeries on pets from time to time. He’d also filled in at some animal surgeries on pets from time to time.

That spring, Dr. Vaughn Ross, then dean of the College of Science, contacted Craig and Plainview as needed to do procedures. Traveling to Lubbock, Slaton and Slaton solely as a contract veterinarian, he got to know some area veterinarians and was called to do surgeries on pets from time to time.

Craig moved to the Plainview area in 2003, bought an old barn outside Petersburg and refurbished it into a home. Meanwhile, he had gotten to know some area veterinarians and was called to do surgeries on pets from time to time. He’d also filled in at some animal surgeries on pets from time to time.

“The veterinary practice has given me insights much like a pediatrician. There is a personal relationship involved with all clients.”

“Teaching was not even on my mind at that time,” Craig said. “I had the opportunity to go back to the vet school as a clinical teacher at one time, but I just never pursued it.”

Now, however, Craig was intrigued at the possibility. A strong Christian and active member of College Heights Baptist Church, where he’d worshipped alongside many of the WBU science professors, he knew the school’s reputation and the atmosphere.

“He’d gotten a good dose of God’s guidance and I felt that’s what was happening here. I felt like if that’s the door God was opening, I was going to follow Him.”

He came on part-time in the fall of 2007, spending the summer brushing up on his biology textbooks from his undergraduate work at Texas Tech, noting that while the basic knowledge was still there, he had to revert back to the theory where he had been working in practice for the past 20-plus years.

Craig said the veterinary experience is easy to translate into the human healthcare world because of several similarities.

“The veterinary field has given me insights much like a pediatrician,” he said. “When kids come in sick, you don’t just deal with them but with moms and dads who help you know what’s wrong with them. The same is true of pets; since they can’t talk, you have to rely on the moms and dads to tell you. There is a personal relationship involved with all clients.”

That clinical experience with patients and with parents helps Craig relate to his students the importance of the personal touch in healthcare fields, one he sees wanting in many larger markets. He’s also enjoyed being able to relate his experience into the practical aspect of healthcare.

“Students these days like to know why we’re doing something and how it relates to them, instead of just doing it,” he said.

As a full-time faculty member, Craig said the transition from practicing veterinarian to teaching at the college level has been easy, in large part because of the atmosphere at Wayland and the people – both students and coworkers. Working with students instead of pets hasn’t been much of a challenge either.

“They’re all the same,” he laughs. “Some just bite harder.”

Craig’s primary teaching field is biology, and he teaches the anatomy and physiology classes, genetics, general biology and a section of life science like his fellow faculty members. He anticipates picking up other courses over the coming years that fit his clinical background. He also serves as adviser to pre-nursing and pre-allied health students. Altogether, around 70 students at WBU are studying for a career in some healthcare field.

**Contact Us**

For more information about health careers and studying pre-health at Wayland, contact Dr. Adam Reinhart:

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**Missions Opportunities**

Regardless of your field of study, the Wayland Missions Center plans mission trips regularly to expose students to different cultures and experiences around the world. Dr. Rick Shaw serves as director of the center.
Undergraduate research opportunities valuable for students pursuing further vocational training

For students dreaming of careers in some avenue of healthcare or in the laboratory sciences, Wayland’s undergraduate research opportunities can be a key element to getting valuable exposure to the methods, processes and patience involved in running in-depth scientific experiments.

Provided by a grant from the Welch Foundation and the university itself, the undergraduate research program offers selected students the opportunity to do real, hands-on chemical or biological research in the Wayland lab during the summer break. Students take no other classes or jobs during the time; the intense experience takes most of their energy and daytime hours. With help from faculty advisors, they choose a research project to pursue, using the spring semester prior to gather research materials, existing data and information before diving into the lab.

Students’ research from the past few summers has been intriguing to many both inside the Wayland community and beyond.

Several summers ago, students Lori Pretzer and Philip Carlson perfected a way of depositing titanium dioxide onto acrylic materials to use as a catalyst for purifying water. The following summer, Luke Loetscher spent his summer perfecting a portable photocatalytic water purifying device using light emitting diodes (LEDs) and the titanium dioxide application to effect a cleansing reaction.

The first work ultimately led to the university applying for its first patent to protect the titanium dioxide technique and a second patent to protect the design of the purifying device.

But the research didn’t end there. After Loetscher’s graduation, another team continued his work and the university enlisted help from other academic areas to research ways to market and produce the devices in order to distribute them to third-world countries where poor water quality causes major health issues.

During the summer of 2009, two undergrads followed up on the work of students before them in researching a root plant and its effects on cancer cells.

Kassie Hughes laughs when she recalls the moment her professor, Dr. Gary Gray, visited them in the lab to see their final analysis results.

“He jumped for joy, that’s for sure,” said the senior chemistry major.

“It took them a while to realize what they had done,” Gray said. “You just don’t see something that appears to kill (cancer) cells like this.”

While they haven’t exactly discovered a cure for cancer, what Hughes and fellow student Asenath Arauza did over the summer does have value in terms of scientific research and in their own personal education.

They chose to follow a path started by May 2009 graduate Joanne Jacob, who had experimented with 12 different herbs and their effect on tumor growth in mice. One in particular had significant results in Jacob’s research, and the two coeds decided to further check out Ashwagandha, commonly known as Indian Ginseng and used by many to treat depression, inflammation and neurological disorders.

Using thin-layer chromatography on glass plates, the team was able to separate the extract into various compounds. Through nearly 30 plates the duo was able to identify one particular compound that was strong every time. They eluded the compound from the plate and tested it on 4T1 breast cancer cells grown in Petri dishes to determine how it would affect the cells. The results were astonishing.

“This was really annihilating the breast cancer cells,” noted Arauza.

“This raises all kinds of interesting questions since this appears to be different than the compounds that are already known,” Gray said. “If this turns out to be a unique plant steroid that just grows naturally and has this effect, this should be pursued.”