



# THE PATHWAY FROM EDUCATION TO VOCATION

*Becoming a Difference Maker in*  
**APPLIED  
MATHEMATICS**

## Why Study **Applied Mathematics** at **Azusa Pacific University?**

The Applied Mathematics major at Azusa Pacific University prepares students to solve real-world problems by developing mathematical models, applying computational algorithms, and analyzing the results. After completing core classes in mathematics and computer science, students have the option of choosing the standard applied mathematics track or a concentration in actuarial science, computer science, or physics.

Jobs in Applied Mathematics are regularly listed at the top of the rankings of most desirable and highest-earning jobs (CareerCast Jobs Rated Report, Payscale College Salary Report). An applied mathematics major provides ideal preparation for careers in finance and banking, statistics and data analysis, actuarial science and risk management, and operations research and management consulting. Employment in mathematics-related occupations is expected to grow by 28 percent over the next 10 years (compared to an overall growth in the workforce of 7 percent) as “businesses and government agencies continue to emphasize the use of big data” (Bureau of Labor Statistics).

APU Applied Mathematics majors learn alongside faculty trained at world-class universities who are committed to living out their faith through innovative teaching and thoughtful mentoring. Through conversations in class and office hours, meals in professors’ homes, and seminars on mathematics and Christian faith, students learn that mathematics is not just a means of managing complexity or maximizing profits, but a tool for helping to cultivate nature and society in the service of our Creator.

## YOU MIGHT CONSIDER AN APPLIED MATHEMATICS MAJOR IF YOU:

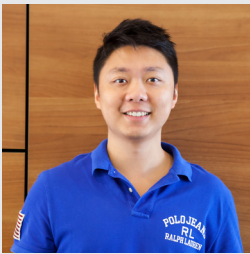
- Are eager to comprehend the hidden mathematical structures that order God's creation
- Find beauty in numbers, shapes, and patterns
- Enjoy using logic to solve problems and puzzles
- Embrace mental challenges
- Are thorough and detail-oriented
- Are comfortable with ambiguity and open-ended questions
- Want to learn to exploit the power of technology for good purposes
- Seek to belong to a vibrant, faithful, and supportive community of learners



**NANCY NIMS '07**  
Development & Operations Engineer  
Amazon

Nancy is responsible for finding weaknesses in design software and suggesting improvements. In addition, she manages automated system monitoring and hardware health. She earned her M.S. in Applied Mathematics at the University of Washington.

*"Find a way to retain the information you are learning beyond the final. You'll need it later when you pursue graduate school or a career."*



**EDWIN DING**  
Associate Professor of Applied Mathematics  
Azusa Pacific University

Dr. Edwin Ding is responsible for designing the applied math curriculum and looking for ways to collaborate with industry. He recently led a group of students in working with Los Alamos National Laboratory on predicting the spread of the Zika virus using mathematical models.

*"Think outside the box and you will see how different things that you learned relate to each other beautifully."*

## APPLIED MATHEMATICS MAJORS ARE PREPARED FOR:

- Building mathematical models to simulate and analyze real-world phenomena
- Employing technological tools to visualize, experiment, and explain
- Analyzing and interpreting data to make strategic decisions
- Communicating mathematical ideas with clarity and rigor
- Success in graduate programs in applied mathematics, finance, business, operations research, computer science, etc.
- Rising to positions of influence within a wide variety of organizations
- Serving and advising churches using their expertise
- Bringing a Christian worldview to bear on all that they do

## GRADUATES IN APPLIED MATHEMATICS WORK AS:

- Actuaries
- Animators
- Architects
- Attorneys
- Biostatisticians
- Budget Analysts
- Climatologists
- College Professors
- Computer Scientists
- Cryptanalysts
- Doctors
- Economists
- Electrical Engineers
- Epidemiologists
- Financial Market Analysts
- Math Teachers
- Mathematical Physicists
- Mechanical Engineers
- National Security Analysts
- Operations Research Analysts
- Software Engineers
- Statisticians
- Technical Writers
- Urban Planners

*\*Many of these careers may require additional training and/or graduate education. See [weusemath.org](http://weusemath.org) for more information*



**JUSTIN GARRISON '05**  
Senior Systems Engineer  
Walt Disney Animation Studios

Justin works on infrastructure for internal services, render farm, and artist workstations at Walt Disney Animation Studios. He says the student work programs at APU taught him how to manage his time wisely between career responsibilities and family.

*"I get to play with gadgets and make cartoons, which I'm pretty sure is every kid's dream."*

To connect with these and other APU alumni, email [clasalumni@apu.edu](mailto:clasalumni@apu.edu)

## STEPS TO TAKE AS A MAJOR IN MATHEMATICS

## OPTIONS TO EXPLORE AROUND APU

### BE CALLED.

EXPLORE. DEFINE. RESEARCH. LEARN.

- **TAKE CALCULUS I AND II (MATH 161 AND MATH 162)**  
Calculus will give you the tools to analyze a ubiquitous feature of our world: continuous change.
- **ATTEND MATH CAREER NIGHT**  
Begin with the end in mind: learn about the many different paths available to mathematics majors and how to get there from here.
- **TALK TO A FACULTY MEMBER**  
Your math professors love to help students dream about how God can use their gifts and passions for good. Please visit us, tell us about yourself, and ask us all the questions you can think of.

- **LEARN HOW TO APPLY YOUR STRENGTHS WITHIN YOUR ACADEMICS, LIFE, AND CAREER**  
Meet with a Career Consultant\* or Strengths Mentor.
- **CONSIDER CAREER OPTIONS FOR YOUR MAJOR**  
Meet with a Career Consultant\* or your faculty advisor to explore and discuss requirements for your career options.

### BE PREPARED.

IDENTIFY. STRENGTHEN. PRACTICE.

- **TAKE ORDINARY DIFFERENTIAL EQUATIONS (MATH 270), PROBABILITY AND STATISTICS (MATH 361), AND COMPUTER SCIENCE (CS 220)**  
These courses will introduce you to foundational ideas and methods which will prepare you well for the upper-division courses.
- **WORK AS A MATH CENTER TUTOR, A SUPPLEMENTAL INSTRUCTION LEADER, OR A TEACHING ASSISTANT**  
Gain valuable teaching experience as you solidify your understanding of course material and earn money.
- **PURSUE A SUMMER INTERNSHIP**  
Spend at least one summer working in your chosen field. Internships often lead to jobs and/or important connections. Start your internship search early, and apply widely.
- **DO SUMMER RESEARCH WITH APU FACULTY OR AT AN NSF REU SITE**  
Get paid to work on research projects at APU or at one of more than 50 sites around the country which host National Science Foundation Research Experiences for Undergraduates (<http://www.nsf.gov/crssprgm/reu>). Most applications are due in February.
- **STUDY ABROAD**  
Apply to the renowned Budapest Semesters in Mathematics (or Mathematics Education) program and spend time immersed in one of the world's richest mathematics cultures.

- **RECEIVE FEEDBACK ON YOUR INTERVIEWING ABILITIES**  
Complete a Mock Interview with a Career Consultant\*
- **CREATE A RESUME TO APPLY FOR AN INTERNSHIP**  
Meet with a Career Consultant\* to review your resume and cover letter. Run them by your professors, too.
- **GROW YOUR SKILLS IN AN ON CAMPUS JOB OR STUDENT LEADERSHIP POSITION**  
Talk to Student Employment or Student Life about the available opportunities.
- **VOLUNTEER LOCALLY AND GLOBALLY TO SHAPE YOUR PERSPECTIVE**  
Talk to the Center for Student Action about how you can serve.
- **GAIN KNOWLEDGE ABOUT YOUR CAREER OPTIONS**  
Do informational interviews or go to a career-related event to learn more about your career, degree, and experience requirements.

### BE CONNECTED.

JOIN. NETWORK. BE ACTIVE.

- **FOLLOW [AZUSA PACIFIC UNIVERSITY DEPARTMENT OF MATHEMATICS AND PHYSICS](#) ON FACEBOOK**  
Check here for announcements and interesting articles on mathematics and faith.
- **PARTICIPATE IN DEPARTMENT GATHERINGS**  
Get to know your math professors and fellow math majors at department barbecues, game nights, hikes, and seminars.
- **ATTEND AS MANY CONFERENCES AS YOU CAN**  
MAA MathFest, Joint Mathematics Meetings, Mathematical Association of America (MAA) Section Meetings, Southern California Conference for Undergraduate Research (SCCUR), California Mathematics Council (CMC) South Conference, Association of Christians in the Mathematical Sciences (ACMS)

- **TALK TO ALUMNI FROM YOUR MAJOR**  
Join [APUConnect.com](#) and start reaching out. You can also email [clasalumni@apu.edu](mailto:clasalumni@apu.edu)\* for help connecting with alumni.
- **GET ACTIVE ON LINKEDIN**  
Meet with a Career Consultant\* to review your profile and learn how to use LinkedIn.
- **ATTEND CAREER-RELATED EVENTS**  
Keep an eye out for career events related to your major or that are happening around campus.
- **HAVE LETTERS OF RECOMMENDATION ON HAND**  
Request them from professors and advisors at least a month before due.

\* Visit [apucareer.youcanbook.me/](http://apucareer.youcanbook.me/) to make an appointment with a Career Consultant

\* Use subject line: Connect me with APU alumni

# APPLYING TO GRADUATE SCHOOL

## EXPLORE.



Learn more at  
[www.apu.edu/career/graduateschool](http://www.apu.edu/career/graduateschool)

## SELECT.

ONLINE RESOURCES TO HELP IDENTIFY THE BEST PROGRAM FOR YOU

[Peterson's Guide](#)  
[GradSchools.com](http://GradSchools.com)  
[The Princeton Review](#)  
[National Assoc. of Graduate Professional Students](#)  
[The Council of Graduate Schools](#)  
[APU Pew Society Graduate Guide](#)

EXAMPLES OF SCHOOLS ATTENDED BY APU **MATHEMATICS** GRADUATES:

[Harvard University](#)  
[University of California, Los Angeles](#)  
[University of Colorado, Boulder](#)  
[University of Pennsylvania](#)  
[University of Washington](#)

## APPLY.

- APPLICATION FORM AND FEES**  
Follow instructions carefully and have one or more people check for errors.
- ENTRANCE ESSAY**  
Provide a writing example that shows your personal objectives.
- TRANSCRIPT**  
Ask APU to send it directly to the school you are applying to.
- LETTERS OF RECOMMENDATION**  
Schools usually require three letters, so get them early.
- INTERVIEWS**  
If your potential school requests an interview, treat it as a job interview.

# FINDING YOUR CAREER

## IDENTIFY.

- Search online job boards and professional associations in the Mathematics field
- Regularly check-in with your organizations of interest and network with those who can inform you of opportunities
- Look on APU Career Network for possible opportunities

### MATHEMATICS ASSOCIATIONS:

[Association of Christians in the Mathematical Sciences \(ACMS\)](#)  
[Mathematical Association of America](#)  
[American Mathematical Society](#)  
[Society for Industrial and Applied Mathematics](#)  
[Association for Women in Mathematics](#)  
[Society of Actuaries](#)  
[Casualty Actuarial Society](#)

## PREPARE.

### BRAINSTORM YOUR EXPERIENCE

What have you done? What is relevant?



### TAILOR YOUR RESUME

What does the job description say?



### WRITE GOOD BULLET POINTS

Do you focus on your accomplishments?



### FORMAT YOUR RESUME

Is it easy to read and follow?



### PRACTICE INTERVIEWING

Know yourself.  
Know the position.  
Know the organization.

## RESEARCH OPTIONS

OCCUPATIONAL OUTLOOK HANDBOOK

[www.bls.gov/ooh/](http://www.bls.gov/ooh/)

O\*NET ONLINE

[www.onetonline.org](http://www.onetonline.org)

PROFESSIONAL ASSOCIATION REFERENCE

[www.weddles.com/associations](http://www.weddles.com/associations)

## NETWORK.

WHO DO YOU KNOW?  
WHO DO YOU NEED TO KNOW?



### WHY NETWORK?

- Learn about different options in your field
- Research companies and positions of interest
- Find hidden opportunities that are not advertised
- Obtain referrals from those who have influence

EXAMPLES OF COMPANIES THAT HIRE APU **MATHEMATICS** GRADUATES:

Amazon  
Axene Health Partners (Actuary)  
Cisco Systems  
Google  
National Security Agency (NSA)  
Hewlett Packard  
NASA Armstrong Flight Research Center  
Stanford Mathematics Research Center (MRC)  
Teach for America  
Union Pacific Railroad  
United States Air Force  
Walt Disney Animation Studios