K-State Mathematics Major

Why?
Why K-State?

Why would someone choose K-State over Ivy League Schools? K-State’s Math Program:

- High quality faculty and students
- Large number winning research scholarships
- Encourages integrated research
- Encourages Dual Degree Pursuits
- Caters to individual interests
- Graduates enter High Tech Industry
- Graduates enter Prestigious Graduate Schools
- Best performance on national and state-wide competitions
- Meritorious performance in International Competitions
- High retention and graduation rates
- Our programs
Graduate School? I don’t know yet. Prepare for the “just in case”. Protect your GPA.

Starting in Actuarial track. One Math course changed my career plan.

Advanced Math helped me pursue my doctorate.

Math was more interesting.

Actuarial Internships helped me select a company.

BioPhysics Ph.D., Student Boston University

A Dual helped me launch my career.

MATH, STAT, CS Minor

Math Competitions fine tuned my career goals.

Advanced Math prepared me for a career in research.

Actuary Saint Paul Travelers

MATH, STAT, ECON

NASA Johnson Space Center

Physical Scientist

Mathematics Ph.D., Student
Univ of Texas

Physics Ph.D., U of Wisconsin
Honorary Research Associate

Ph.D. Student Combinatorics
Rutgers

Medical Physics Ph.D., Student

Univ of Florida

Algebraic Topology Ph.D., Student
John Hopkins

Stat Ph.D., Student
Univ at Berkeley

MATH/STAT
My Math Tour and Visit

"The tours given by mathematics represented the department very well."

"John and Dan enjoyed their math tour yesterday. We had much to talk about when they got home."

"I appreciate very much that you were able to accommodate us on such short notice."

"As we walked away, I asked John, "What do you think?" He said "I could see myself going here."

"Thank you for taking the time to visit with us - and what a visit it was!"

"Meeting with you helped immensely, as you were hospitable, making us comfortable enough to ask questions."

"After meeting with you, I realized how many doors a math major opens."

"It was really interesting and amazing to listen to your magic stories of math. I found something, I hope I can visit your "magic room" again."

"Your math tour was very informative."

"The math department gave the most personalized informative visit."

"It was interesting to know what options were available for individuals with a math degree as far as career choices go as well as the support offered to the students by the faculty, staff and fellow students in Math."
What I thought about the program

- The Math help sessions are good. I like those. They definitely helped.
- My math professors were very helpful in supporting me in deciding where to go and what to do.
- The advanced help sessions were very helpful.
- The math web page was helpful:
  - It has sample programs - you can kind of see what they recommend you take.
  - I could see studies laid out for four years and suggested courses.
  - It was a helpful way to find different instructor email addresses and office hours.
- Upper level classes are all small.
- The professors were helpful and encouraged you to come to their office hours.
- I thought the math web pages were pretty easy to navigate and find what I was looking for. I used them quite a bit.
- I really like the way basic math classes are set up. I really liked having multiple teachers explaining the same stuff to me.
- I am really glad they offered advanced help sessions.
- The opportunity to grade papers helped me secure my foundation in basic math.
- I can't really see the shortcomings if there are any.
- The math professors were always very willing to help you understand a topic or work with you outside of class.
- The help sessions were also a lot of help, both the advanced and lower level ones.
- The math program: I liked how I was able to tailor it just for me.
- I really liked having the old tests on the websites.
- Being able to get to know professors since the class sizes are so small.
- You're able to approach professors, even if they don't teach the class, and get help.
- I feel like I've been challenged just enough.
- Upper level Professors in other departments encouraged my taking more math.
- To really understand some physical concepts requires a huge amount of mathematical machinery.
- Getting advice from math advisors was good. They had a little more insight into if you wanted to learn more about a subject, then you're going to need to take these courses.
How we help student's excel

- Before I came here I didn't know that undergraduates did research.
- I felt like there was a lot of support.
  - Faculty notice your mathematical interest and talent
  - They try to make sure to support your interests and goals
  - And make sure that you know what is available. What kind of options students have.

It's a really good program for people who are passionate about math.
- I liked that I could take graduate level research as an undergraduate. I took both Masters and Ph.D. level research courses. My friends in schools that did not have a graduate program had more trouble getting into grad school then I did.
- Working in advanced help teaches you to think on your feet and solve problems that much faster.
- I also think grading the upper level classes has really helped my own studies.
Why Math?

Why dual or major in math?

- Math is in everything
- There is life after math
- Higher level Math helps students in all fields
- Top Level Positions go to Math Majors
  - The Engineer and the Math Major
- Thinking of Graduate School, Math will help
Really Great Advising

What makes our advising so good

- Everyone is treated the same
  - Personalized one-on-one advising
  - Detailed initial advising appointment
  - Open ended appointments allow more than an hour if needed
  - Faculty are available for questions
  - We encourage duals and help students achieve “their” goals by offering advice applicable to both degrees.
Who majors in Math?

- People who love math
  - Some like the detailed workings of math
  - Some like to solve problems
  - Some want it for a tool to help in another field
  - Some have learned about the career options and have chosen one of these
**SAMPLE KANSAS STATE UNIVERSITY MATHEMATICS ALUMNI**

Matching Careers to Majors

National Average Salary for Occupations was obtained from [www.glassdoor.com](http://www.glassdoor.com)

<table>
<thead>
<tr>
<th>EMPLOYER</th>
<th>OCCUPATIONS</th>
<th>National Average Salary</th>
<th>MAJORS</th>
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<tbody>
<tr>
<td>William M Mercer Inc</td>
<td>Actuary</td>
<td>$102,787</td>
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<td>Aerospace Corporation</td>
<td>Aerospace Programmer</td>
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<td>National Instruments</td>
<td>Applications Engineer</td>
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<td>University of Washington</td>
<td>Assistant Professor</td>
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<td>BCHE BCHMSC-BS BMATH-BS</td>
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<td>Allstate Insurance Company</td>
<td>Associate Predictive Modeler</td>
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<td>Unified Life Insurance</td>
<td>AVP and Associate Actuary</td>
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<td>Mayo Clinic Division of Biostatistics</td>
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<td>Bloom Health</td>
<td>Chief Actuary</td>
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<td>Univ of California</td>
<td>Computational Chemist</td>
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<td>BCHMSC-BS BMATH-BS</td>
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<td>Acumen LLC</td>
<td>Data and Policy Analyst</td>
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<td>Global Laboratory Operations</td>
<td>Executive Vice President</td>
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<td>Rensselaer Polytech Inst</td>
<td>Ford Foundation Prof</td>
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<td>Nuclear Regulatory Commission</td>
<td>Health Physicist</td>
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<td>Lawyer</td>
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<td>NASA Johnson Space Center</td>
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<td>Argonne National Laboratory</td>
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<td>Shavlik Technologies LLC</td>
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<td>Intel Corporation</td>
<td>Senior Staff Architect</td>
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<td>Google Inc</td>
<td>Software Development</td>
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<td>Garmin International Inc</td>
<td>Software Engineer</td>
<td>$90,374</td>
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<td>Herbalife</td>
<td>Sr. Statistician</td>
<td>$87,202</td>
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<td>Structural Analyst</td>
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<td>Spirit Aerosystems Inc</td>
<td>Structural Design Engineer</td>
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<td>Sandia National Labs</td>
<td>System Admin</td>
<td>$68,507</td>
<td>BCMPS-BS BMATH-BS BCS</td>
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<td>Cigna Corporation</td>
<td>Underwriting Manager</td>
<td>$100,624</td>
<td>BMATH-BS MECON</td>
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[https://www.math.ksu.edu/ugrad/careersjobs/CareerByMajorAvgSalarySample.pdf](https://www.math.ksu.edu/ugrad/careersjobs/CareerByMajorAvgSalarySample.pdf)
Explore Higher Level Education

<table>
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<tr>
<th>Employer</th>
<th>Occupation</th>
<th>Advanced Degree</th>
<th>Field</th>
<th>Advanced Degree Institution</th>
<th>K-State Degree</th>
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<td>Sandridge Energy</td>
<td>GIS Analyst</td>
<td>MS</td>
<td>Applied Geography</td>
<td>University of North Texas</td>
<td>BMATH-BS</td>
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<td>Google Inc</td>
<td>Software Engineer</td>
<td>PHD</td>
<td>Mathematics</td>
<td>Princeton University</td>
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<td>Wolfram</td>
<td>Business Development</td>
<td>PHD</td>
<td>Atomic/Molecular Physics</td>
<td>Auburn University</td>
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<td>IBM Watson</td>
<td>Software Engineer</td>
<td>MA</td>
<td>Economics</td>
<td>Kansas State University</td>
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<td>Khan Academy</td>
<td>Dean of Data Science</td>
<td>MS</td>
<td>Computer Science</td>
<td>Princeton University</td>
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<td>Mayo Clinic</td>
<td>Biostatistics Analyst</td>
<td>MS</td>
<td>Biostatistics</td>
<td>University of Minnesota Twin Cities</td>
<td>BMATH-BS</td>
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<td>Facebook</td>
<td>Software Engineer</td>
<td>MS</td>
<td>Computer Science</td>
<td>New York University</td>
<td>BMATH-BA</td>
</tr>
</tbody>
</table>

Higher Level Education impacts the opportunities available in a career field and leads to jobs in academia, business, government or industry. About half of our graduates that go to graduate school work in academia and about half work in business, government or industry.
Careers in Math

- **Actuary**
  - Works with statistics and probabilities
  - May dual in Statistics or Finance
  - Works for big insurance or stock market companies
  - Some interests in this area are:
    - Risk Management
    - Insurance Rate Setter
    - Stock Market Analyst
    - Retirement Plan Designer
    - Derivative and Stock Option Analysis
Careers in Math

**Cryptographer**

- Creates and deciphers encryption codes using mathematics
- May dual in Modern Language, Computer Science or Computer Engineering
- Will work for a security agency, financial institution or internet company.
Careers in Math

- Topologist
  - Studies the mathematics of surfaces
  - May dual in Computer Science or Engineering or Theater
  - Oceanography and mapping companies, animation companies
Careers in Math

Mathematical Consultant

- Works with large businesses to solve complex mathematical problems.
- A variety of degrees complement this area
- Large companies and high tech industries and consulting firms
Careers in Math

- **Mathematical Scientist or Research Analyst**
  - Works with a team of scientists using and inventing the cutting edge of mathematics
  - Complements any scientific degree including: Physics, Biology, Biochem, Chemistry, Geology, Microbiology, Premed, Computer Science, Computer Engineering
  - Works for high tech industries, armed forces and government research
Careers in Math

- **Numerical Analyst**
  - uses numerical procedures and computers to analyze data and model physical systems.
  - May dual in Computer Science or Engineering
  - High tech industry or armed forces or government
Careers in Math

- **Operations Research Analyst**
  - optimizes the operation of a system and provides a quantitative basis for decision making, especially the allocation of resources.
  - May dual in Computer Science or Engineering
  - High tech industry or armed forces or government
Careers in Math

Environmental Mathematician
- Works with a team tackling tough environmental problems
- Dual in any of the sciences
- Works for industry and the government
### Careers Enhanced By Math

- Actuary
- Analyst Programmer
- Avionic Operations Analyst
- Bioinformatician
- Biomathematician
- Biostatistician
- Capital Planning Analyst
- Computer Graphics Designer
- Computer Programmer
- Computer Research Scientist
- Computer Scientist
- Computer Security Analyst
- Computer Software Engineer
- Computer Systems Analyst
- Cryptanalyst
- Cryptographer
- Cryptologist
- Data Analyst
- Database Administrator
- Derivative/Stock Option Analyst
- Economic Analyst
- Engineering Analyst
- Financial Analyst
- Financial Consultant
- Information Scientist
- Information Systems Manager
- Investment Analyst
- Market Analyst
- Mathematical Computer Scientist
- Mathematical Consultant
- Mathematical Physical Chemist
- Mathematical Physicist
- Numerical Analyst
- Operation Research Analyst
- Planning Analyst
- Process Analyst
- Program Analyst
- Research Scientist
- Risk Analyst
- Rocket Scientist
- Satellite Research Scientist
- Scientific Consultant
- Software Engineer
- Special Effects Designer
- Statistician
- Systems Analyst
- Systems Design Analyst
- Systems Integrator
- Technical Analyst
- Technical Consultant
- Technologies Inventor
Some of Your Questions and Answers

What ACT score should I have to consider math as a major?

- There is no ACT score that determines if someone can major in math. We have alumni with low ACT scores who have risen to the highest levels of their profession. What determines success is 10% talent and 90% effort. The effort always wins.

What level of Math should I take?

- There are online Algebra and Calculus Math Placement Exams at http://www.math.ksu.edu/placement, that may help the student. Also Dr. Muenzenberger gives level of math advice on a walk in basis as well.

How do I test out of math?

- The Academic Assistance Center in Holton Hall offers tests out of calculus and college algebra http://www.k-state.edu/aac/testing/. Many of the standardized tests like the CLEP and DANTES are offered at testing sites close to where the student lives. You can let them know this and transfer them to 532-6492 for more information.

What if I am having trouble with a math course?

- Placement in the correct course is the first step. You may look at the course description, syllabi, course outline and a previous year's exam to help make this decision. You may want to take the Placement Exam to evaluate where you are at. Even though it takes longer and cost more, it is sometimes better to take a lower level math class to gain the knowledge needed to go on. Success should be a strong factor in your decision. An A or B in the lower level course will help ensure a good grade in the next level course. Math instructors are very accessible for questions. Students may sit in more than one lecture to hear the material again. There are a number private and group tutoring services offered around campus: http://www.math.ksu.edu/main/course_info/help/index.html. Final exams from previous semesters are available at http://www.math.ksu.edu/main/course_info/oldtests. Academic Assistance offers help with math anxiety, 532-6492.

Who teaches the math courses at K-State?

- All math lectures at K-State are taught by faculty in the Fall and Spring. At the 300 level and above faculty teach all parts of the courses offered except the labs in Matrix Theory which are taught by Ph.D. level students.

Is there help for this higher level math?

- The Math Department provides free help for selected courses 300 level and above in the Fall and Spring semesters.

I got a letter about the engineering math science award, how do I apply?

- The application is at http://www.engg.ksu.edu/osms/osms.php. For more information contact:
  - Patty Berens at (785) 532-6686 or pberens@ksu.edu.

Is there an Actuarial Science Program at K-State?

- Yes. See http://www.math.ksu.edu/main/ugrad/major.htm#Actuarial.

How do I find out more about a math scholarship?

- Visit or call and ask to speak with Deb or Tom in at 2-0557 or 2-6750.