Mathematics

FROM STUDY TO SKILLS

All academic programs offered at the UM help students develop valuable transferable skills. Mathematics is a field that serves other sciences, but also stands on its own as one of the greatest edifices of human thought. The study of mathematics demands rigorous, analytical reasoning and will develop your ability to solve problems by careful logical analysis and the application of a succession of complex techniques. As a math concentrator, you will develop a broad range of skills to discover the essence of problems, synthesize general theories to address specific problems, and apply theories across a variety of situations.

Related fields include Economics, Statistics, Physics, Computer Science, Informatics, and Engineering.

SKILLS & ABILITIES

Problem-Solving Skills
- Defining, clarifying, and recognizing problems
- Testing hypotheses
- Applying a theory to a specific problem
- Perceiving patterns and structures
- Determining relevant information
- Identifying relationships between problems and solutions
- Generating solutions

Analytical Skills
- Modeling complex systems
- Developing theories
- Projecting/forecasting/analyzing results
- Assessing risks
- Comparing information/data
- Evaluating ideas/methods
- Reasoning by analogy
- Thinking/reasoning abstractly

Communication Skills
- Describing processes in non-technical terms
- Communicating abstract concepts
- Translating between written texts and computations/formulas
- Explaining theories/ideas
- Summarizing findings
- Contributing to teams

Technical/Computational Skills
- Computer modeling
- Numerical simulation
- Analyzing statistics
- Program design
- Visualizing abstract shapes/patterns
- Applying quantitative analysis
- Maintaining precision and accuracy

BUILDING YOUR SKILLS OUTSIDE THE CLASSROOM

Employers seek out individuals who can demonstrate excellent verbal and written communication skills, teamwork and interpersonal skills, initiative, and a strong work ethic. Student organizations and campus employment offer valuable opportunities to add to the skills you are developing in your classes. Most concentrations sponsor specific student groups like an undergraduate organization or an honor society. Other options include study abroad, off-campus employment or volunteering in the community. Finally, a summer internship may be the best way of all to test out a career field and develop marketable skills.
FROM SKILLS TO CAREER

The skills you will gain as a math concentrator will prepare you to succeed in a number of fields. Math concentrators have gone on to a wide range of career fields, such as law, medicine, politics, business, as well as every aspect of science, computer science, technology, and of course mathematics itself. In addition, math concentrators may choose to continue their education in graduate or professional school.

Problem-Solving Skills
Management consultant
Operation researcher
Chief information officer
Operations manager
Systems analyst
Budget analyst
Control systems engineer
Financial officer
Military analyst
State budget director

Analytical Skills
Investment banker
Financial officer
Financial planner
Lawyer
Simulation modeler
Stockbroker
Actuarial analyst
Life & PC actuary
Benefits analyst
Social security administrator
Demographer
Economist
Risk Management Analyst

Communication Skills
K-12 and college teacher
College administrator
Customer support and training supervisor
Financial consultant
Health consultant
Bio-mathematician
Foundation executive
Grant administrator
Natural Science Manager

Technical Skills
Meteorologist
Cryptologist
Atmospheric scientist
Medical researcher
Software engineer
Computer programmer
Community manager
Dentist
Physician

For more career information, see O*Net at http://online.onetcenter.org/

CONCENTRATION REQUIREMENTS

The technological revolution demands a wide variety of mathematically skilled workers. The department therefore offers sub-concentrations ranging from pure and honors mathematics, through applied mathematics (incl. actuarial science), to the teaching certificate. Students have substantial choice among the specialized and cognate courses, allowing you to focus on specific interests.

Consult our website (see below) for complete information on course offerings and program requirements.

NEXT STEPS/RESOURCES

To begin connecting to professionals in fields that interest you, create your own LinkedIn account:
www.careercenter.umich.edu/students/networking/linkedin_intro.html

To identify internships or job opportunities, visit Career Center Connector:
www.careercenter.umich.edu/c3student/

Maize Pages list hundreds of organizations for students to get involved in: http://studentorgs.umich.edu/maize

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