



What can I do with a Major in... Mathematics

What is Mathematics at U of L?

The principal missions of The Department of Mathematics are to teach mathematics and perform research in the mathematical sciences. The Department also provides professional mathematical services to other University units as well as local and regional groups. The Mathematics Department is dedicated to providing a high quality mathematics education for both majors and non majors alike. To this end, The Department has designed a variety of courses to meet the needs and desires of today's U of L students. The Mathematics Department maintains a strong research program in both basic and applied mathematics. Faculty research interests are broad. The Department also hosts occasional research seminars, workshops, and conferences that attract mathematical experts from around the world.

Degrees in Mathematics at U of L:

Bachelor of Arts in Mathematics

Bachelor of Science in Mathematics

Minor in Mathematics

Minor in Actuarial Mathematics

Master of Arts in Mathematics

Doctor of Philosophy in Applied and Industrial Mathematics

Occupational Overview

Conduct research in fundamental mathematics or in application of mathematical techniques to science, management, and other fields. Solve or direct solutions to problems in various fields by mathematical methods.

Employment Requirements [Extensive Job Preparation Needed]

A bachelor's degree is the minimum formal education required. However, many employers also require graduate school. For example, they may require a master's degree, and some require a Ph.D., M.D., or J.D. (law degree).

Career Opportunities in Mathematics:



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Related Career Titles

Accountant
Actuary
Aerospace Engineer
Air Traffic Controller
Applications Programmer
Applied Science Technologist
Artificial Intelligence
Astronomer
Banking/Credit/Invest. Mgr
Biometrician/ Biostatistician
Cartographer
Commodity Manager
Compensation/Benefits Adm
Computer Consultant
Computer Engineer
Computer Facilities Mgr
Computer Installation
Computer Marketing Rep
Computer Programmer
Computer Scientist
Computer-Aided Design Tech.
Contract Administrator
Contract Administrator
Cost Estimator/Analyst
Cryptographer/Cryptologist
Data Control Administrator
Data Processing Manager
Database Manager
Demographer
Econometrician
Economist
EDP Auditor
Employee Relations
Engineer
Engineering Lab Technician
Environmental Technologist
Estate Planner Production Manager
External Auditor
Financial Auditor
Financial Consultant
Financial Manager
Hydro Geologist
Hydrologist
Industrial/Institutional Buyer
Information Scientist
Inventory Control Spec.
Investment Banker
ISO 2000 Specialist
Loan/Credit Officer
Market Research Analyst
Mathematician
Media Buyer
Meteorologist
Mortgage Researcher
Network Programmer
Numerical Analyst
Operations Research Analyst
Physicist
Pollution Meteorologist
Production Support
Psychometrician
Public Health Statistician
Purchasing/Contract Agent
Quality Assurance Analyst
Rate Analyst
Research Analyst
Risk & Insurance Specialist
Risk Analyst
Robotics Programmer
Satellite Communications
Software Developer
Software Engineer
Software Support Specialist
Statistician
Systems Analyst
Systems Engineer
Systems Programmer
Teacher
Technical Support Rep.
Technical Writer
Transportation Planner
Treasury Management Spec.
Underwriter
Urban Planner
Value Engineer



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Employers/Industries and Success Strategies:

Weekly seminars in many areas of mathematics are offered during the semester. The Department also sponsors a colloquium series featuring visitors as well as local faculty. In addition, the Department hosts a small number of special talks directed at a general audience, featuring internationally known experts from mathematics, economics, finance and related fields.

Industry: Consulting firms - Manufacturing, Transportation, Aerospace, Machinery, Electrical, Pharmaceuticals industries

Suggested Strategy: Note that greatest demand is for applied mathematicians with skills in computer science, electronics design and theory, statistics and probability. Develop computer and research skills. Learn to use relevant software packages. Earn a master's degree in math, business, or related field for advanced positions or for consulting jobs. Maintain excellent GPA for graduate/professional school admission. Gain relevant experience through internships, volunteering, summer, or part-time jobs.

Government: Federal agencies including Defense, Labor, Justice, Agriculture, Health and Human Services, Transportation, Commerce, Treasury, NASA, and Library of Congress State agencies involving research and problem-solving teams

Suggested Strategy: Become familiar with government hiring procedures. Make contacts through involvement in campus, local, or state politics. Obtain internship with local, state, or federal government. Join related professional organizations.

Market Research: Consumer goods manufacturing firms - Market research firms

Suggested Strategy: Acquire a business minor. Develop good oral and written communication skills. Volunteer to assist a professor with research. Become a student member of the American Marketing Association. Assist with canvassing/phone interviewing for charities or political campaigns. Complete a market research internship.

Banking: Commercial banks - Credit unions - Regional banks - Savings and loan associations

Suggested Strategy: Obtain a business minor. Complete an internship in a financial institution. Develop excellent computer skills. Demonstrate attention to detail. Become the financial officer or treasurer of a campus organization.

Education: Colleges and universities - Private schools - Public schools **Suggested Strategy:** Obtain appropriate state licensure and/or certification for public school teaching positions. Volunteer to teach, supervise, or tutor with organizations such as Big Brother/Sister, YMCA, or churches. Develop excellent written and oral communication skills. Acquire a master's degree or Ph.D. for teaching positions at the college or university level.

Related Links in the Mathematics Discipline:

Professional Association Links

American Mathematical Society <http://www.ams.org>

Association of Women in Math www.awm-math.org/ads.html

National Council of Teachers of Mathematics <http://www.nctm.org>

American Statistical Association <http://www.amstat.org>

Mathematical Association of America <http://www.maa.org>

Society for Industrial and Applied Mathematics <http://www.siam.org>



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Society of Actuaries <http://11www.soa.org/>
IEEE Computer Society <http://www.computer.org/pubs/computer/career/career.htm>
Intelligent Information Systems <http://www2.renewal-iis.com>
Microsoft <http://www.microsoft.com/ms.htm>
SAS <http://www.sas.com>
US Census Bureau <http://www.census.gov/hrd/www.index.html>
Computing Research Association <http://cra.org>
Career Planning Links
Mathematical Association of America <http://www.maa.org/careers>
Cool Math: careers in math <http://www.coolmath.com/careers.htm>
Careers in math http://www.cln.org/themes/careers_math.html
Career Resources www.awm-math.org
Math Archives <http://archives.math.utk.edu/undergraduates.html#careers>
Women in NASA <http://quest.arc.nasa.gov/women/intro.html>
Mathematics of Cartography <http://math.rice.edu/~lanius/pres/map/mapcar.html>
PLUS Magazine (math journal) - great descriptions of job options <http://www.pass.maths.org>
Careers in Science & Engineering- A Student Planning Guide to Grad School and Beyond <http://www.nap.edu/readingroom/books/careers/>
Career Converter <http://6steps.monster.com/step1/careerconverter>
Career Fields <http://career.berkeley.edu/Infolab/CareerFields.stm>
Resources http://guide.symphlicity.com/resources/profession_index_a_z.php
US Department of Energy Career Intern Program http://humancapital.doe.gov/pers/cip/applicant/index_applicant.htm
Internships at NASA <http://www.nasajobs.nasa.gov/studentopps/employment/default.htm>
Science Careers Web <http://www.sciencecareersweb.net/>
GEMS (Groundwork Education in Mathematics and Science) Information is available at <http://www.math.louisville.edu/gems/>
AMS's Math in the MEDIA
MathWorld's Headline News
UofL Math Club
Pi Mu Epsilon

Ideas for Co-op

After two years, students who meet the College of Arts and Sciences GPA requirement, become eligible to participate in the Department's Co-op program, which enables students to work outside the University for academic credit.

Scholarships, Awards, and Fellowships

Robert J. Bickel Scholarship An annual scholarship to a promising student on the basis of merit.

Petty Scholarship Provides financial assistance to a student who is majoring in mathematics.



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Lois Pedigo Scholarship

Provides financial assistance to a student who is majoring in mathematics.

Mary Ruth Brookover Award Presented annually to an outstanding senior majoring in mathematics

Salary/Outlook Info

Median annual earnings of mathematicians were \$81,240 in May 2004. The middle 50 percent earned between \$60,050 and \$101,360. The lowest 10 percent had earnings of less than \$43,160, while the highest 10 percent earned over \$120,900. In early 2005, the average annual salary for mathematicians employed by the Federal Government in supervisory, nonsupervisory, and managerial positions was \$88,194; that for mathematical statisticians was \$91,446; and for cryptanalysts the average was \$70,774.



<http://online.onetcenter.org>



<http://www.bls.gov/>

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