

III. MATHEMATICAL SCIENCES

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Department of Mathematical Sciences

The department of Mathematical Sciences at Messiah College seeks to offer quality majors in Computer Science, Mathematics, Mathematics with Teacher Certification, and Physics. It also offers minors in Computer Science, Mathematics, and Statistics. Students going into these areas are generally:

- skilled in analyzing and problem-solving
- able to organize and to think logically
- interested in working with computers
- keen observers capable of intense concentration and abstract reasoning
- detail-oriented

Career opportunities are abundant in the Mathematical Sciences. Employers value the quantitative reasoning ability of graduates trained in these areas.

Computer Science

This major is designed to give students a broad education in the computer and information sciences, with emphasis in quantitative skills. Students learn the theory as well as the practical skill necessary to develop and implement computer systems. After taking the foundational courses, students have many choices to complete the major. Hands-on experience complements coursework, including internships and practicums.

Mathematics

Majors learn to appreciate the logical beauty of mathematical thought, and how to use it to solve many kinds of problems. After taking the foundational courses, students can choose among theoretical and applied mathematics courses as they pursue their career objectives. Opportunities to participate in regional and national workshops, competitions, and summer research experiences are promoted by the department faculty and advisors.

Mathematics with Teacher Certification

Education methods courses are combined with a strong major in mathematics to give the student the necessary skills for teaching mathematics. Upon completing this major, and fulfilling the state of Pennsylvania requirements, the students receive Pennsylvania State certification to teach mathematics at the junior or senior high school level.

Physics

The physics major is designed for students who are interested in the foundations of physics and who desire to develop the abilities and skills necessary to understand the physical world by means of experimental measurements and mathematics language. The major prepares students for work in a variety of industries, teaching physics at high school level, and for graduate school in physics, astronomy, or engineering.

Planning Your Academic Program

Major Course Offerings in the Mathematical Sciences Department

EVERY SEMESTER

COSC 180 Intro. to Computer Science and Information Systems	MATH 211 Calculus III
COSC 182 Computer Programming II	MATH 261 Linear Algebra
MATH 111 Calculus I	MATH 308 Differential Equations
MATH 112 Calculus II	

FALL SEMESTER ONLY

COSC 195 (J) First Year Computer Science Seminar	PHYC 201 Introductory Physics I
COSC 281 System Internals & Assembly Lang.	PHYC 212 General Physics II
COSC 332 Database Concepts	STAT 291 Statistics for Math. Sciences I
COSC 382 Organization of Program Language	MATH 407 Sec. Math Methods
COSC 415 Data Comm. & Networking	MATH 109 Calculus Pt I
MATH 362 Algebraic Structures	

SPRING SEMESTER ONLY

COSC 282 Data Structures & Algorithms	MATH 195 First Year Mathematics Seminar
COSC 317 Computer Hardware Organization	MATH 494 Senior Mathematics Seminar
COSC 333 Database Applications	PHY 202 Introductory Physics II
COSC 416 Oper. Sys. & Comp. Architecture	PHY 211 General Physics I
COSC 494 Computer Science Seminar	STAT 292 Stat. for Math Sciences II
MATH 110 Calculus I Pt. II (J)	MATH 412 Real Analysis

ALTERNATE YEARS FALL SEMESTER ONLY

COSC 418 Artificial Intelligence (even years)	STAT 346 Statistical Methods in O.R. (even years)
COSC 487 Computer Graphics (odd years)	STAT 407 Intro. Math Statistics (odd years)
MATH 341 Mathematical Modeling (odd years)	

ALTERNATE YEARS SPRING SEMESTER ONLY

MATH 382 Geometry (odd years)	STAT 324 Advanced Stat Methods (even years)
COSC 335 Software (even years)	STAT 325 Experimental Design (odd years)

Guidelines for Mathematical Sciences Courses

All students in the Mathematical Sciences major should take either MATH 111 or MATH 109 in their first semester, unless you have received Advanced Placement credit for Calculus I or beyond. Both MATH 109 and MATH 111 are ‘Calculus I’ courses; the difference between the two is the pace of study. MATH 111 is designed for students with a strong precalculus (algebra/trigonometry) background, and the course covers differential and integral calculus in one semester. The course sequence MATH 109/110 (offered every Fall/J-term), covers the same material as MATH 111 in a two-semester sequence. Students with weak algebra skills or gaps in their mathematical background will benefit from taking the MATH 109/110 sequence. In the first week of MATH 111, **all students will be given a placement exam to determine if they need to switch to MATH 109.**

Students with Advanced Placement credit:

Requirements for courses in mathematical sciences can be met through Advanced Placement exam credit. The College awards the following credit for AP scores:

If you took this AP exam	And scored:	Then you will receive credit for	And should enroll in
Computer Science A	3, 4, or 5	COSC 181 (3 credits)	COSC182
Computer Science AB	3 4 or 5	COSC 181 (3 credits) COSC 181, 182 (6 credits)	COSC182 COSC281
Calculus AB	3 4 or 5	(Should Receive) MATH 108 MATH 111 (4 credits)	MATH112
Calculus BC	3 w/AB subscore 4 or 5 4 or 5	MATH 111 (4 credits) MATH 111, 112 (8 credits)	MATH112 MATH112 or MATH211
Physics B	3 4 or 5	PHYS 201 (4 credits) PHYS 201, 202 (8 credits)	PHYS202 or PHYS212*
Physics C: Mechanics	3, 4, or 5	PHYS 211 (4 credits)	PHYS 212
Physics C: E&M	3, 4, or 5	PHY S211, 212 (8 credits)	MATH 111, 112, 211, or 308
Statistics	3, 4, or 5	STAT 269 (3 credits)	STAT 291**

* Mathematics majors are required to take the PHYS 211/212 sequence rather than PHYS 201/202. However, if a student in the mathematics major receives AP credit for **both** PHYS 201 and 202, the 211/212 requirements are waived.

** AP Statistics is not a calculus-based course or exam. Mathematics majors who receive AP credit for Statistics are still required to take STAT 291 for the major requirement. Exceptions may be made for strong students, after consulting with their academic advisor in the first year.

Any updated information about awards for AP credit can be found at the website:
http://www.messiah.edu/departments/mathsci/courses/ap_credit.html

Suggested Four-Year Plan

Schedule for Students Taking Computer Science Courses

Courses	Fr.	So.	Jr.	Sr.
COSC 181-182 Computer Programming I,II (3,3) FS, FS				
COSC 180 Intro to Computer Science and Information Systems				
COSC 281 System Internals and Assembly (3) F				
COSC 282 Data Structures and Algorithms (3) S				
COSC 317 Computer Hardware Organization (3) S				
COSC 332 Database Concepts (3) F				
COSC 333 Database Applications (3) S				
COSC 382 Organization of Prog. Lang. (3) F				
COSC 415 Data Com. and Networking (3) Alt. F				
COSC 416 Operating Systems & Comp. Arch. (3) S				
COSC 418 Artificial Intelligence (3) Alt. F				
COSC 487 Computer Graphics (3) Alt. F				
COSC 494 Computer Science Seminar (3) S				
MATH 111-112 Calculus I, II (4,4) FS, FS OR MATH 109-110-112				
MATH 211 Calculus III (4) FS OR				
MATH 261 Linear Algebra (3) FS OR				
STAT 291 Statistics for Math Sciences I (3) F				
MATH 341 Math Modeling (3)				
BIS 411 Systems Analysis and Design (3) Alt. F				
PHYS 211-212 General Physics I, II (4,4) S, F				
OR PHYS 201-202 Introductory Physics I, II (4,4) FS				

Computer Science

(Department of Mathematical Sciences)

General Education requirements on reverse side

Major Requirements

<u>Major Courses</u>	<u>Credits</u>	<u>Semester Completed</u>
[COSC 180] Introduction to Computer Science and Information Systems	3	_____
[COSC 181] Computer Programming I	3	_____
[COSC 182] Computer Programming II	3	_____
[COSC 281] System Internals and Assembly Language	3	_____
[COSC 282] Data Structures and Algorithms	3	_____
[COSC 317] Computer Hardware Organization	3	_____
[COSC 382] Organization of Programming Languages	3	_____
[COSC 416] Operating Systems and Computer Architecture	3	_____
[COSC 494] Computer Science Senior Seminar	3	_____
Three of the following: (9 credits total)	9	_____
[COSC 332] Database Concepts (3)		_____
[COSC 333] Database Applications (3)		_____
[COSC 335] Software Engineering I (3)		_____
[COSC 415] Data Communications and Networking (3)		_____
[COSC 418] Artificial Intelligence (3)		_____
[COSC 487] Computer Graphics (3)		_____
[COSC 490] Topics in Computer Science (3)		_____
[MATH 111] Calculus I or MATH 109,110 equivalent	4-7	_____
[MATH 112] Calculus II	4	_____
One of the following pairs of courses: (8 credits total)	8	_____
[PHYS 201], [PHYS 202] Introductory Physics I, II (4, 4)		_____
[PHYS 211], [PHYS 212] General Physics I, II (4, 4)		_____
One of the following:	3 or 4	_____
[MATH 211] Calculus III (4)		_____
[MATH 261] Linear Algebra (3)		_____
[STAT 291] Statistics for Mathematical Sciences I (3)		_____
Plus 3 more courses from the following:	3	_____
Any unused courses in the above two categories or	3	_____
[BIS 333], [BIS 343], [BIS 381], [BIS 401], [BIS 411], [BIS 412], [BIS 491], [COSC 391], [COSC 491], [MATH 301], [MATH 341], [MATH 342], [MATH 362], [STAT 292], [STAT 346]		_____

Computer Science

(Department of Mathematical Sciences)

Major requirements on reverse side

General Education Requirements

<u>Courses</u>	<u>Credits</u>	<u>Semester Completed</u>
First Year Seminar	3	_____
Oral Communications	3	_____
Created and Called for Community	3	_____
Mathematical Sciences ([MATH 111])	3 or 4	met by major
Laboratory Science ([PHYS 201], [PHYS 202], [PHYS 211], [PHYS 212])	3 or 4	met by major
Science, Technology & the World		waived
Two of the following:	6	_____
Social Science (3 credits)		_____
European History (3 credits)		_____
United States History (3 credits)		_____
Literature	3	_____
Philosophy and Religion	3	_____
Arts	3	_____
Language/Cross Cultural		
First Semester of Language	3	_____
Second Semester of Language	3	_____
Third Semester of Language or Cross Cultural	3	_____
Non-Western Studies	2 or 3	_____
Bible	3	_____
Christian Beliefs	3	_____
Health and Physical Fitness		
Introduction to Wellness	2	_____
Activity Course	1	_____
One of the following:	3	_____
Ethics (3 credits)		_____
World Views (3 credits)		_____
Pluralism in Contemporary Society (3 credits)		_____
Writing Enriched Course		_____

SUMMARY OF DEGREE REQUIREMENTS:

General Education	47-48
Major Requirements	64-68
Free Electives	7-12
Total	123

Mathematics

(Department of Mathematical Sciences)

General Education requirements on reverse side

Major Requirements

<u>Major Courses</u>	<u>Credits</u>	<u>Semester Completed</u>
[COSC 181] Computer Programming I	3	_____
[MATH 111] Calculus I	4-7	_____
(or [MATH 109] Calculus I, Part I (4) and [MATH 110] Calculus I, Part II (3))		_____
[MATH 112] Calculus II	4	_____
[MATH 195] First-Year Mathematics Seminar	3	_____
[MATH 211] Calculus III	4	_____
[MATH 261] Linear Algebra	3	_____
[MATH 362] Algebraic Structures	3	_____
[MATH 412] Introduction to Real Analysis	3	_____
[MATH 494] Senior Mathematics Seminar	3	_____
[PHYS 211] General Physics I	4	_____
[PHYS 212] General Physics II	4	_____
[STAT 291] Statistics for Mathematical Sciences I	3	_____
One of the following:	3	_____
[COSC 182] Computer Programming II (3)		_____
[STAT 292] Statistics for Mathematical Sciences II (3)		_____
Twelve additional credits of approved MATH/STAT 3xx/4xx courses	12	_____

Mathematics

(Department of Mathematical Sciences)

Major requirements on reverse side

General Education Requirements

<u>Courses</u>	<u>Credits</u>	<u>Semester Completed</u>
First Year Seminar	3	_____
Oral Communications	3	_____
Created and Called for Community	3	_____
Mathematical Sciences ([MATH 111] or [MATH 112] or [MATH 211])	3 or 4	met by major _____
Laboratory Science ([PHYS 211] or [PHYS 212])	3 or 4	met by major _____
Science, Technology & the World		waived _____
Two of the following:	6	_____
Social Science (3 credits)		_____
European History (3 credits)		_____
United States History (3 credits)		_____
Literature	3	_____
Philosophy and Religion	3	_____
Arts	3	_____
Language/Cross Cultural		
First Semester of Language	3	_____
Second Semester of Language	3	_____
Third Semester of Language or Cross Cultural	3	_____
Non-Western Studies	2 or 3	_____
Bible	3	_____
Christian Beliefs	3	_____
Health and Physical Fitness		
Introduction to Wellness	2	_____
Activity Course	1	_____
One of the following:	3	_____
Ethics (3 credits)		_____
World Views (3 credits)		_____
Pluralism in Contemporary Society (3 credits)		_____
Writing Enriched Course		_____

SUMMARY OF DEGREE REQUIREMENTS:

General Education	47-48
Major Requirements	56-59
Free Electives	16-20
Total	123

Mathematics with Secondary Teaching Certification

(Department of Mathematical Sciences)

General Education requirements on reverse side

Major Requirements*

<u>Major Courses</u>	<u>Credits</u>	<u>Semester Completed</u>
[COSC 181] Computer Programming I	3	
[MATH 111] Calculus I	4-7	
(or [MATH 109] Calculus I, Part 1 (4) and [MATH 110] Calculus I, Part II (3))		
[MATH 112] Calculus II	4	
[MATH 195] First-Year Mathematics Seminar	3	
[MATH 211] Calculus III	4	
[MATH 261] Linear Algebra	3	
[MATH 307] Secondary Mathematics Instruction	2	
[MATH 362] Algebraic Structures	3	
[MATH 382] Geometry	3	
[MATH 412] Introduction to Real Analysis	3	
[MATH 494] Senior Mathematics Seminar	3	
[PHYS 211] General Physics I	4	
[PHYS 212] General Physics II	4	
[STAT 291] Statistics for Mathematical Sciences I	3	
One of the following:	3	
[COSC 182] Computer Programming II (3)		
[STAT 292] Statistics for Mathematical Sciences II (3)		
Three additional credits of approved MATH/STAT 3xx/4xx courses	3	
[EDUC 201] Education and American Society	3	
[EDUC 203]/[PSYC 203] Educational Psychology	3	
[EDUC 210] Sophomore Field Experience	0	
[EDSP 207] Introduction to Special Education	3	
[EDSP 307] Inclusion Practices	3	
[EDUC 310] Junior Field Experience	0	
[EDUC 331] Instructional Design & Assessment for Secondary Ed.	3	
[ENGL 330] Methodology in Teaching English as a Second Lang.	3	
Professional Semester:		
[EDUC 420] Professional Issues in Education	2	
[EDUC 435] Student Teaching: Secondary	8	
[MATH 407] Secondary Mathematics Curriculum & Instruction	1	
[PSYC 311]/[HDFS 311] Adolescent Development	3	

*Students who are considering secondary mathematics teaching as one of several career options in mathematical sciences are encouraged to complete an additional 6 credits of MATH/STAT 3xx/4xx courses. This allows you to graduate with a Mathematics degree, if you choose, while still maintaining Pennsylvania Secondary Teaching Certification.

Mathematics with Secondary Teaching Certification

(Department of Mathematical Sciences)

Major requirements on reverse side

General Education Requirements

<u>Courses</u>	<u>Credits</u>	<u>Semester Completed</u>
First Year Seminar	3	
Oral Communications	3	
Created and Called for Community	3	
Mathematical Sciences ([MATH 111] or [MATH 112] or [MATH 211])	3 or 4	<u>met by major</u>
Laboratory Science ([PHYS 211] or [PHYS 212])	3 or 4	<u>met by major</u>
Science, Technology & the World		<u>waived</u>
Two of the following:	6	
Social Science (3 credits – [EDUC 203])		<u>met by major</u>
European History (3 credits)		
United States History (3 credits)		
Literature	3	
Philosophy and Religion	3	
Arts	3	
Language/Cross Cultural		
First Semester of Language	3	
Second Semester of Language	3	
Third Semester of Language or Cross Cultural	3	
Non-Western Studies	2 or 3	
Bible	3	
Christian Beliefs	3	
Health and Physical Fitness		
Introduction to Wellness	2	
Activity Course	1	
One of the following:	3	
Ethics (3 credits)		
World Views (3 credits)		
Pluralism in Contemporary Society (3 credits)		
Writing Enriched Course		

SUMMARY OF DEGREE REQUIREMENTS:

General Education	44-45
Major Requirements	84-87
Total	128-132

Suggested Four-Year Plan

Schedule for Students Taking Mathematics Courses

Courses	Fr.	So.	Jr.	Sr.
MATH 111-112 Calculus I, II (4,4) FS, FS				
MATH 195 First Year Mathematics Seminar (3) S				
MATH 211 Calculus III (4) FS				
MATH 261 Linear Algebra (3) FS				
MATH 308 Differential Equations (3) FS				
MATH 341 Mathematical Modeling (3) Alt. F				
MATH 342 Applied Combinatorics (3) Alt. F				
MATH 362 Algebraic Structures (3) Alt. S – Jr. yr for 2nd Ed				
MATH 382 Geometry (3) Alt. S				
MATH 392 History of Mathematics (3) Alt. S				
MATH 405 Intro to Mathematical Research (3) Alt. F				
MATH 412 Intro to Real Analysis (3) Alt. S				
MATH 494 Senior Mathematics Seminar (3) S				
COSC 181 Computer Programming I (3) FS				
STAT 291 Statistics for Math Sc. I (3) F Fall Soph. for Stats Minor				
COSC 182 Computer Programming II (3) FS				
OR STAT 292 Stat for Math Sc. II (3) S				
PHYS 211-212 General Physics I, II (4,4) S, F				

Physics (B.A.)

(Department of Mathematical Sciences)

General Education requirements on reverse side.

Major Requirements

<u>Major Courses</u>	<u>Credits</u>	<u>Semester Completed</u>
[MATH 111] Calculus I	4-7	_____
(or [MATH 109] Calculus I, Part 1 (4) and [MATH 110] Calculus I, Part II (3))		_____
[MATH 112] Calculus II	4	_____
[MATH 211] Calculus III	4	_____
[MATH 261] Linear Algebra	3	_____
[MATH 308] Differential Equations	3	_____
[STAT 291] Statistics for Mathematical Sciences	3	_____
[COSC 181] Computer Programming I	3	_____
[PHYS 211] General Physics I	4	_____
[PHYS 212] General Physics II	4	_____
[PHYS 251] Modern Physics	4	_____
[PHYS 328] Mechanics	3	_____
[ENGR 367] Electromagnetics	3	_____
[ENGR 371] Thermodynamics	3	_____
[PHYS 402] Quantum Mechanics	3	_____
[CHEM 495] Capstone Natural Sciences	3	_____
[PHYS 494] Senior Physics Seminar	3	_____

Physics (B.A)

(Department of Mathematical Sciences)

Major Requirements on reverse side.

General Education Requirements

<u>Courses</u>	<u>Credits</u>	<u>Semester Completed</u>
First Year Seminar	3	_____
Oral Communications	3	_____
Created and Called for Community	3	_____
Mathematical Sciences ([MATH 109]/[MATH 110], [MATH 111], [MATH 112], or [MATH 211])	3 or 4	_____met by major
Laboratory Science ([PHYS 211])	3 or 4	_____met by major
Science, Technology, & the World	3	_____waived
Two of the following:	6	_____
Social Science (3 credits)		_____
European History (3 credits)		_____
United States History (3 credits)		_____
Literature	3	_____
Philosophy and Religion	3	_____
Arts	3	_____
Language/Cross Cultural		
First semester of Language	3	_____
Second semester of Language	3	_____
Third semester of Language or Cross Cultural	3	_____
Non-western studies	2 or 3	_____
Bible	3	_____
Christian Beliefs	3	_____
Health and Physical Fitness		
Introduction to Wellness	2	_____
Activity Course	1	_____
One of the following:	3	_____
Ethics (3 credits)		_____
World Views (3 credits)		_____
Pluralism in Contemporary Society (3 credits)		_____
Writing Enriched Course		_____

SUMMARY OF DEGREE REQUIREMENTS:

General Education	47
Major Requirements	54-57
Free Electives	19-22
Total	123

Physics (BS)

(Department of Mathematical Sciences)

General Education requirements on reverse side

Major Requirements

<u>Major Courses</u>	<u>Credits</u>	<u>Semester Completed</u>
[MATH 111] Calculus I	4	_____
(or [MATH 109] Calculus I, Part 1 (4) and [MATH 110] Calculus I, Part II (3))		_____
[MATH 112] Calculus II	4	_____
[MATH 211] Calculus III	4	_____
[PHYS 211] General Physics I	4	_____
[PHYS 212] General Physics II	4	_____
The following courses are taken at the Philadelphia campus in conjunction with Temple University:		
MATH 3041 Differential Equations	3	_____
PHYS 2101 Classical Mechanics	3	_____
PHYS 2501 Computing for Scientists*	3	_____
PHYS 2502 Mathematical Physics	4	_____
PHYS 2701 Introduction to Modern Physics	4	_____
PHYS 3101 Analytical Mechanics	3	_____
PHYS 3301 Electricity and Magnetism	4	_____
PHYS 3302 Classical Electromagnetism	3	_____
PHYS 3701 Introduction to Quantum Mechanics	3	_____
PHYS 4101 Thermodynamics and Kinetic Theory	3	_____
PHYS 4302 Optics	3	_____
PHYS 4796 Experimental Physics	3	_____
Six additional credits from the following:	6	_____
PHYS 4301 Electronics (3)		_____
PHYS 4701 Introduction to Solid State Physics (3)		_____
PHYS 4702 Intro of Atomic, Nuclear, and Particle Physics (3)		_____

*Recommended, but not specifically required. To meet Temple requirements, students must choose two science/math/electrical engineering courses beyond those specifically required. [MATH 261] will satisfy Temple's requirement for the second course. [COSC 181] is a good background for Temple course PHYS 0161.

Physics (BS)

(Department of Mathematical Sciences)

Major requirements on reverse side

General Education Requirements

<u>Courses</u>	<u>Credits</u>	<u>Semester Completed</u>
First Year Seminar	3	_____
Oral Communications	3	_____
Created and Called for Community	3	_____
Mathematical Sciences ([MATH 111] or [MATH 112] or [MATH 211])	3 or 4	met by major _____
Laboratory Science ([PHYS 211] or [PHYS 212])	3 or 4	met by major _____
Science, Technology & the World	3	waived _____
Two of the following:	6	_____
Social Science (3 credits)		_____
European History (3 credits)		_____
United States History (3 credits)		_____
Literature	3	_____
Philosophy and Religion	3	_____
Arts	3	_____
Language/Cross Cultural		
First Semester of Language	3	_____
Second Semester of Language	3	_____
Third Semester of Language or Cross Cultural	3	_____
Non-Western Studies	2 or 3	_____
Bible	3	_____
Christian Beliefs	3	_____
Health and Physical Fitness		
Introduction to Wellness	2	_____
Activity Course	1	_____
One of the following:	3	_____
Ethics (3 credits)		_____
World Views (3 credits)		_____
Pluralism in Contemporary Society (3 credits)		_____
Writing Enriched Course		_____

SUMMARY OF DEGREE REQUIREMENTS:

General Education	47-48
Major Requirements	64
Free Electives	11-12
Total	123

Mathematical Sciences

Career Center for Vocation and Development, Messiah College

The Career Center offers comprehensive services to all students throughout their program of study. From identifying skills and personality traits, to choosing a major, to gaining related experience and preparing for graduate school or job interviews, the staff at the Career Center are available at every step along the path.

Identification of Strengths

Common characteristics and skills of students pursuing study in the Department of Mathematical Sciences:

- Proficiency for accurate details
- Ability to understand both concrete and abstract mathematical concepts
- Ability to understand and practically apply information derived from technical manuals
- Ability to cope with constant change
- Independent, self-disciplined, analytical and logical

We can help you identify your strengths through individual career counseling and self-assessment inventories like the Myers-Briggs, Self-Directed Search, and the Strong Interest Inventory. Understanding your unique skills and interests allows you to translate your personal characteristics into professional opportunities.

Resources for Career Exploration and Employment Connections

- *101 Careers in Mathematics*
- *Career Opportunities in Computers and Cyberspace*
- *Careers for Cybersurfers and Other Online Types*
- *Careers in Finance*
- *Great Jobs for Math Majors*
- Individual handouts—“*I’m interested in...*” e.g. Mathematics, Computers
- Individual handouts—“*What can I do with this degree?*” e.g. Mathematics, Computer Science
- Alumni Contacts for Information Interviews & Job Shadowing
- On-campus Recruitment and Interviews
- *Career Center Alumni Survey of Recent Grads*
- *Job Choices* magazines
- *E-Recruiting Service* <http://messiah.erecruiting.com>
- *Career Guide to America’s Top Industries*
- *Computing and Software Design Career Directory*
- *Hoover’s Handbook of American Business*
- *Peterson’s Job Opportunities for Engineering & Computer Science Majors*
- <http://www.beanactuary.org>

Internship Center

The Internship Center offers off-campus exploration and internships to all majors and can help you explore career areas through the following:

- Internships
- Practica

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“I used the Career Center Job Line and web site to find a summer job, which turned into a full year internship and then full time employment.”

—Computer
Science
'00 Grad

Sample Internship Opportunities

- Computer Science, Delta Development Group, Inc.
- Logistics, Four Seasons Produce, Inc.
- NT Systems Analyst, Hershey Foods Corporation
- Software Developer, IBM Corporation
- Computer Specialist, Naval Sea Logistics Center
- Broker's Assistant, Prudential Securities
- Accounting, Jacob Engle Foundation, Inc.

Career and Job Preparation Assistance

- Individual Career Coaching
- *Career action plan*
- “Snapshots of Vocation”—alumni stories (brochure and website)
- Senior focus events—sponsored by the Career Center and Alumni Office
- Resume and cover letter development, samples and individual critiques
- Job and Graduate School Preparation Workshops
- Interview preparation and practice interviews
- Job and Graduate School Fairs
- Workshops on a variety of career-related topics
- Online job and resume posting (<http://messiah.erecruiting.com>)

College-Sponsored Job and Internship Fairs

- Career & Graduate School Expo
- Capital Region Internship Fair
- Technology Job and Internship Fair
- CPEC Internship and Job Fair
- CVC Internship and Job Fair
- TRD (Teacher Recruitment Day)

Home Page Connections www.messiah.edu/offices/career

Visit our home page to access information on majors, employment opportunities, graduate and professional school preparation, and alumni stories of vocation. A complete calendar of events and registration options, resume referrals, and sign-up options for on-campus interviews are available through eRecruiting. Visit job searches by major, as well as general employment information.

Graduate School Preparation

- *Graduate School Handbook*
- Assistance with graduate and professional school resumes, essays, applications, and interviews
- The *Graduate School Guide* and the *Christian Graduate* magazine (both free)
- Peterson's grad school directories; test preparation booklets and guides
- Graduate School Fair and Seminary & Theological Studies Fair—held on campus, fall semester
- Gradschools.com—one of many sites for graduate school and program searches
- Kaplan Practice Test Sessions: GRE, GMAT, LSAT, and MCAT
- Celebration Reception for students accepted to grad school

C A R E E R C E N T E R

“My internship was instrumental in landing the job I have now. It helped me gain not only experience, but also contacts which opened doors for me.”

—Computer
Science
'00 Grad

Mathematical Sciences

EpiCenter, Messiah College

Although EpiCenter programs are open to all students, there are some programs that may be of particular interest to students in the Department of Mathematical Sciences. Below is a description of these opportunities. For more details, stop by the EpiCenter.

“The world is a great book, of which they who never stir from home read only a page.”

Resources available in the EpiCenter include:

- Applications
- Brochures / Catalogs / Videos
- Course Listings
- International Student Identity Cards
- Fact Sheets
- Passport Photos

Information is provided about:

- Costs
- Deadlines
- Names of Program Advisors
- Passports
- Requirements
- Traveling/Studying Abroad

City University Athens

Students live and study in the shadow of the ancient Acropolis while participating in BCA's program in Athens. Field trips to such places as the Delphi, Corinth, Mycenae, Epidaurus, Naphleon, and Sparta provide students with an introduction to the history and culture of Greece.

- ✓ Sophomore, junior, or senior status
- ✓ 2.75 GPA

City University has courses in mathematics and computer science.

Daystar University

Messiah Students can join the approximately 1,800 learners who study each year at Daystar University in Kenya, East Africa.

- ✓ Sophomore, junior, or senior status
- ✓ 2.75 GPA

The university has math and education departments and offers a number of courses that may fulfill general education requirements.

Internships

Students who participate in the Messiah College Internship Program have opportunities to test their educational theories in real world settings as they preview possible career options.

- ✓ Junior or senior status
- ✓ 2.5 GPA

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“I was challenged in all I did. I was able to gain experience and ... I was able to learn new aspects in my field of computer science.”

—Computer Science major, Internship

Philadelphia Campus

Studying in Philadelphia allows students to have the benefits of a large university and the closeness of a small community as they experience an urban culture. Students take classes from both Messiah and Temple faculty and live in one of the seven Messiah-owned buildings on Broad Street.

- ✓ Sophomore, junior, or senior status
- ✓ 2.5 GPA

Physics majors spend two years at the Philadelphia campus.

Philipps University

Messiah students can strengthen their language skills by spending a semester or a year studying at the oldest Protestant university in the world. Students live with German families or may be permitted to live in Schloss castle.

- ✓ Junior or senior status
- ✓ Four semesters of college-level German are required
- ✓ 3.0 GPA

This program offers courses in Mathematics

Student Visitor Program

Students can study for a semester at any of the schools that make up the Christian College Consortium without the hassle of exhaustive application forms, putting the educational resources of 12 other colleges at their disposal.

- ✓ Good academic standing
- ✓ First year through senior year

University of Gloucestershire

Located in southwestern England (near the border of Wales). University of Gloucestershire is home to the BCA program in the UK. Messiah students experience British life in the quaint English town of Cheltenham. Students also travel to historical and cultural locations around the country.

- ✓ Sophomore, junior, or senior status
- ✓ 2.7 GPA

Computer Science related courses are available.

***To discover more opportunities, visit the EpiCenter Online:
www.messiah.edu/studyabroad***

***For More Information Contact:
Wendy Lippert (ext. 6089) or Faith Minnich (ext. 7373)
EpiCenter@messiah.edu***

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