

### What are the required core courses?

<i>Interdisciplinary</i>	2	IDSC526	Christian Faith and the Sciences
	1	IDSC575	Math and Science Seminar
	1-3	IDSC698	Project
<i>Mathematics</i>	3	MATH405	Applied Mathematics
<b>TOTAL</b>	<b>7-9</b>		

### If I choose Mathematics as one of my two areas of emphasis, what courses would I take?

You will need to complete 12 semester units of coursework in mathematics, including MATH405 (in the core) plus an additional nine units selected from the courses below

<i>Mathematics</i>	3	MATH408	Complex Analysis
	3	MATH426	Mathematical Modeling in Biology
	3,3	MATH431,432	Advanced Calculus I and II
	3,3	MATH441,442	Advanced Algebra I and II
	3	MATH475	Geometry
	3	MATH530	Topics in Teaching Mathematics (repeatable to 6 credits)
	3	MATH540	Topics in Mathematics (repeatable to 6 credits)
<b>TOTAL</b>	<b>Choose any 9 units</b>		

### If I choose Chemistry as one of my two areas of emphasis, what courses would I take?

You will need to complete 12 semester units of coursework in chemistry, including eight units of required Chemistry core (in bold) plus an additional four units selected from the courses below

<i>Chemistry</i>	<b>4</b>	<b>CHEM431,441</b>	<b>Physical Chemistry I with lab</b>
	<b>4</b>	<b>CHEM432,442</b>	<b>Physical Chemistry II with lab</b>
	4	CHEM415	Advanced Inorganic Chemistry
	4	CHEM440	Instrumental Analysis
	2	CHEM470	Modern Synthetic Techniques
	2	CHEM475	Advanced Topics in Physical Chemistry
	2-4	CHEM530	Topics in Teaching Chemistry (repeatable to 6 credits)
	2-4	CHEM540	Topics in Chemistry (repeatable to 6 credits)
<b>TOTAL</b>	<b>Choose 8 unit core plus any additional 4 units</b>		

### If I choose Physics as one of my two areas of emphasis, what courses would I take?

You will need to complete 12 semester units of coursework in physics, including eight units of required Physics core (in bold) plus an additional four units selected from the courses below

<i>Physics</i>	<b>2.5</b>	<b>PHYS411</b>	<b>Theoretical Mechanics</b>
	<b>2.5</b>	<b>PHYS430</b>	<b>Thermodynamics</b>
	<b>3</b>	<b>PHYS481</b>	<b>Quantum Mechanics</b>
	2.5	PHYS412	Theoretical Mechanics II
	2.5	PHYS416	Biophysics
	3,3	PHYS431,432	Electricity and Magnetism I and II
	2.5	PHYS445	Particle Physics
	2.5	PHYS460	Solid State Physics
	1	PHYS477	Advanced Physics Laboratory (repeatable to 2 credits)
	3	PHYS482	Quantum Mechanics II
	2-3	PHYS530	Topics in Teaching Physics (repeatable to 6 credits)
	2-3	PHYS540	Topics in Physics (repeatable to 6 credits)
	<b>TOTAL</b>	<b>Choose 8 unit core plus any additional 4 units</b>	

### Physical Chemistry covers very similar material to Thermodynamics and Quantum mechanics. If I choose the Chemistry + Physics option, do I need to take both?

No. The core requirements are met by either the eight units of Physical Chemistry or the eight units of Theoretical Mechanics + Thermodynamics + Quantum Mechanics. The extra eight units may be chosen from the remaining elective courses in the discipline.

# ANDREWS FAQ

## Master of Science in Mathematics and Physical Science

### What is a MS: Mathematics and Physical Science degree?

The Master of Science in Mathematics and Physical Science is designed for students who wish to acquire a breadth of knowledge which cannot be achieved within any one discipline among chemistry, mathematics, and physics.

### Who is the degree for?

Such a degree may be useful for secondary or middle-school teachers who teach mathematics and science subjects, and who do not desire a traditional MAT program or who need single-subject qualifications in these areas; for those who wish to develop skills in areas of overlap in these disciplines; for those who wish to study the inter-relationships among the disciplines; and for those who wish further preparation for careers in industry or government.

### I am currently a High School teacher. Is this degree for me?

Definitely. If you already have state teaching credentials for secondary school teaching, the MS: Math and Physical Science degree will provide the coursework necessary for single-subject teaching credentials in at least two of the three areas of Chemistry, Mathematics, and Physics. You will also need to pass the state exams in these areas.

### I wish to get a Ph.D. in mathematics or one of the sciences, but I don't feel like I am ready for a Ph.D. program at a major institution. Is this degree for me?

Usually the MS: Math and Physical Science degree is not recommended for those wishing to continue on to a Ph.D. in one of the subject areas, as the BS degree in Math, Chemistry, or Physics at Andrews University provides the needed preparation for Ph.D. level studies. However, if you already have a bachelor's degree in one field, but wish to continue graduate studies in another field of science, this degree may be a good alternative to getting a second bachelor's degree. For instance, if you received a minor in physics as an undergraduate, but wish to continue with graduate studies in physics, the MS degree can provide the needed coursework to qualify you for entrance to a major Ph.D. program in physics.

### What are the prerequisites for getting into the MS: Math and Physical Science program?

You must hold a bachelor's degree (BS or BA) in one of the sciences or mathematics, or in a related field, and have completed the following courses with a GPA of at least 2.60 (on a 4.00 point scale).

<i>Chemistry</i>	8	CHEM 131, 132	General Chemistry I and II with labs
<i>Computer Sci</i>	3	CPTR125 or 151	Computer Programming
<i>Mathematics</i>	8	MATH141, 142	Calculus I and II
	3	MATH286	Differential Equations
<i>Physics</i>	10	PHYS241,242,271,272	Physics for Scientists (calculus based)
<b>TOTAL</b>	<b>29</b>		

### I haven't taken one or more of the prerequisites listed above. Can I still be admitted into the program?

Yes. Up to eight semester units of prerequisite courses may be taken after acceptance into the program. If you are lacking more than eight semester units of prerequisites, you will need to petition for "dual enrolment" status in order to take the required undergraduate courses simultaneously with your graduate courses. This may, however, extend the total time required to complete the degree program.

### I took the algebra-based General Physics. Do I have to take Physics for Scientists as well?

No. General Physics is acceptable for entrance into the MS program. However, your committee may assign specific courses in physics to make sure you understand the calculus foundation for physics.

### What are the course requirements to get the MS: Math and Physical Science degree?

You will need to complete 32 semester units of coursework, of which at least 16 units must be in courses numbered 500 and above, including an interdisciplinary core and at least 12 semester units in each of two selected disciplines (chosen from chemistry, mathematics, and physics). You will also pass a comprehensive examination over the two selected areas of emphasis. This comprehensive exam is in addition to any state credentialing examinations that may be required by the state for teaching certification.

### How long will the degree take me?

Students typically complete the program in two years, though it is possible to complete all requirements in three semesters.

### I am a full-time teacher. Is it possible to complete the degree in the summer?

No. Some limited courses applying to the degree are taught during the summer. But many required courses are taught only during the school year. If you take all available summer courses, you still need to plan on spending at least one academic year in residence at Andrews University to complete the requirements.