

PHYSICS MAJOR FOR SECONDARY TEACHING

Updated April 2011

The Physics major for Secondary teachers consists of a minimum of 30 credits in Physics. Cognate courses are also required beyond the 30 hours. Candidates for certification in this major must pass the Michigan Test for Teacher Certification (MTTC) in Physics (Test #19). You must demonstrate your knowledge in following categories:

Subarea	Approximate % of Questions on Test
1. Foundations of Scientific Inquiry	12%
2. Mechanics	24%
3. Electricity & Magnetism	24%
4. Waves, Acoustics and Optics	20%
5. Nature of Matter, Thermodynamics & Modern Physics	20%

You may access a study guide at the MTTC testing site; the courses below have been selected so that you will be well prepared for the test.

The following chart is intended to provide you a guide for scheduling your semesters and for keeping track of your grade point average.

PHYSICS REQUIRED CORE (20 credits)

SUBJECT/ COURSE	TITLE	CREDIT HOURS	SEMESTER	GRADE
PHYS 121	General Physics I	3		
PHYS 141	Physics Lab I	1		
PHYS 122	General Physics II	3		
PHYS 142	Physics Lab II	1		
PHYS 270	Modern Physics	4		
PHYS 361	Analytical Mechanics	4		
PHYS 280	Introduction to Mathematical Physics	2		
PHYS 281	Intermediate Physics Lab	2		

OTHER PHYSICS AND ENGINEERING COURSES (10 credits)

SUBJECT/ COURSE	TITLE	CREDIT HOURS	SEMESTER	GRADE
GEMS 151 OR GEMS 206	Science and Technology for Everyday Life	4		
	The Night Sky	2		
At least one 300/400 Level Course				
PHYS 342	Electricity and Magnetism	4		
PHYS 362	States of Matter	4		
PHYS 372	Quantum Theory	4		
PHYS 381	Advanced Physics Lab	2		
Remaining credits may be filled by any other Physics courses:				
PHYS_____	_____			
PHYS_____	_____			

REQUIRED COGNATE COURSES

MATH (16 credits)

SUBJECT/ COURSE	TITLE	CREDIT HOURS	SEMESTER	GRADE
MATH 131	Calculus	4		
MATH 132	Calculus II	4		
MATH 231	Multivariable Math I	4		
MATH 232	Multivariable Math II	4		

SCIENCE LAB COURSE (4 credits)

SUBJECT/ COURSE	TITLE	CREDIT HOURS	SEMESTER	GRADE
May choose a Biology, Chemistry, or Geology lab course. With PRIOR permission of the department a GEMS course may be substituted for a departmental course.				
Course: _____				

A SCIENCE METHODS COURSE - REQUIRED (3 credits)

(The Science methods course is considered pedagogy and will be counted with your education courses for certification.)

SUBJECT/ COURSE	TITLE	CREDIT HOURS	SEMESTER	GRADE
EDUC 331	Teaching of Science in the Secondary School (offered Fall Semester only)	2		
EDUC 332	Teaching of Science in the Secondary School Field Placement (offered Fall Semester only)	1		

This MUST be completed prior to the student teaching semester!