



**Montclair State University**  
**Department of Mathematical Sciences**  
**BS Physics**

<b>I. Major Requirements</b>	<b>38 sh</b>	<b>III. GenEd Requirement</b>	<b>29 sh</b>
<b>A. Physics Core</b>	<b>(24 sh)</b>	A. New Student Experience	<i>MATH 102</i> 1
PHYS 191 University Physics I	4	C. Communications	9
PHYS 192 University Physics II	4	ENWR 105 College Writing I	
PHYS 210 Mechanics	4	ENWR 106 College Writing II	
PHYS 240 Electricity and Magnetism	4	CMST 101 Fundamentals of Speech	
PHYS 350 Optics	4	D. Fine and Performing Arts	3
PHYS 460 Modern Physics	4	F. Humanities	6
<b>B. Physics Electives</b>	<b>(14 sh)</b>	F1. World Literature/General Humanities	
<b>Select a minimum of 14 sh from the list below</b>		F2. Philosophy/Religion	
PHYS 242 Circuit Theory	3	G. Fund. of Programming I	<i>CSIT 111</i> (0)
PHYS 245 Electronics and Digital Circuits	3	H. Math	<i>MATH 122, 221</i> (0)
PHYS 247 Microprocessors and Applications	3	I. Natural/Physical Science	<i>PHYS 191</i> (0)
PHYS 280 Astronomy	4	J. Physical Education	1
PHYS 310 Advanced Mechanics	3	K. Social Science	9
PHYS 320 Thermodynamics	3	American/European History	
PHYS 340 Adv. Electricity/Magnetism	3	Non-Western Culture	
PHYS 368 Fluid Mechanics	3	Social Science	
PHYS 377 Mathematical Physics	3	L. Gen Ed Elective	<i>CHEM 120</i> (0)
PHYS 380 Observational Astronomy	4	<b>IV. World Languages and Cultures Requirement</b>	<b>3-9 sh</b>
PHYS 430 Cmpnt Simulations of Phys Systems	3	A. World Languages	3-6
PHYS 462 Nuclear Physics	4	B. World Cultures	0-3
PHYS 464 Quantum Mechanics	3	<b>VI. Free Electives</b>	<b>17-23 sh</b>
PHYS 470 Solid State Physics	3		
PHYS 480 Astrophysics	3		
PHYS 490 Literature Research in Physics	2		
PHYS 495 Laboratory Research in Physics	1-4		
EAES 105 Physical Geology	4		
<b>II. Collateral Requirements</b>	<b>27 sh</b>	<b>Minimum total required for graduation</b>	<b>120 sh</b>
MATH 122 Calculus I	4		
MATH 221 Calculus II	4		
MATH 222 Calculus III	4		
MATH 420 Differential Equations	4		
CSIT 111 Fundamentals of Proqraming I	3		
CHEM 120 General Chemistry I	4		
CHEM 121 General Chemistry II	4		

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**Suggested Sequence for Four-Year Plan**

The following sequence assumes exemption from all basic skills requirements as a result of meeting or exceeding the required scores on the MSU Basic Skills Placement Test.

**First Year**

<b>Fall</b>	<b>Spring</b>
PHYS 191 University Physics I (4) ENWR 105 College Writing I (3) MATH 122 Calculus I (4) CSIT 111 Fundamentals of Programming I (3) MATH 102 New Student Experience (1) Total: 15	PHYS 192 University Physics II (4) ENWR 106 College Writing II (3) MATH 221 Calculus II (4) CMST 101 Fundamentals of Speech (3) Physical Education Requirement (1) Total: 15

**Second Year**

<b>Fall</b>	<b>Spring</b>
PHYS 210 Mechanics (4) MATH 222 Calculus III (4) CHEM 120 General Chemistry I (4) General Education course (3) Total: 15	PHYS 240 Electricity and Magnetism (4) MATH 420 Differential Equations (4) CHEM 121 General Chemistry II (4) World Cultures/Free Elective (3) Total: 15

**Third Year**

<b>Fall</b>	<b>Spring</b>
PHYS 350 Optics (4) Physics Elective (3) Language requirement (3) General Education Course (6) Total: 16	PHYS 460 Modern Physics (4) Physics Elective (3) Language requirement (3) General Education Course (3) Free Elective (3) Total: 16

**Fourth Year**

<b>Fall</b>	<b>Spring</b>
Physics Elective (4) General Education Course (3) Free Elective (7) Total: 14	Physics Elective (4) General Education Course (3) Free Elective (7) Total: 14

Note: The work plan assumes that the student will take a 2 semester foreign language sequence (6 sh) for undergraduate requirement IV. Also, the World Cultures 3 sh can be counted as part of GenEd requirement III.

## NOTES

THIS WORKSHEET, THE MONTCLAIR STATE UNIVERSITY UNDERGRADUATE CATALOG, AND THE SEMESTER SCHEDULE OF COURSES BOOKLETS CONTAIN THE IMPORTANT ADVISING AND ACADEMIC INFORMATION NECESSARY FOR AN ACCURATE UNDERSTANDING OF THE DEGREE REQUIREMENTS. STUDENTS WITH QUESTIONS ARE URGED TO CONSULT THE DEPARTMENT COORDINATOR OF UNDERGRADUATE ADVISING.

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**FAILURE TO BE AWARE OF AND FOLLOW UNIVERSITY ACADEMIC AND ADMINISTRATIVE POLICIES AS OUTLINED HERE AND IN THE UNIVERSITY UNDERGRADUATE CATALOG AND SEMESTER SCHEDULE OF COURSES BOOKLETS MAY RESULT IN LOSS OF CREDIT AND/OR DELAYED GRADUATION.**

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RESTRICTIONS - The following courses MAY NOT BE TAKEN FOR GRADUATION CREDIT BY MATHEMATICS MAJORS: MATH 100, MATH 103, MATH 106, MATH 109, MATH 113, MATH 114, MATH 116, MATH 270, INFO 270, MGMT 273.

PASS/FAIL LIMITATIONS - Those courses that meet the major, collateral, teacher certification, or general education requirements may not be taken pass/fail.

MULTICULTURAL AWARENESS REQUIREMENT - All students are required to take one course that satisfies the university multicultural awareness requirement. Refer to the current university undergraduate catalog for a complete listing of acceptable courses.

PREREQUISITES - It is the student's responsibility to ensure that courses are taken in the academically correct order. A current list of prerequisites for these and other courses may be found in the current university undergraduate catalog or through the office of the offering department.

BASIC SKILLS - Students placed into basic skills courses as a result of the MSU Basic Skills Placement Test are required to enroll in those courses the first semester and continue in sequence each semester until required work is completed. All basic skills course work is counted in the cumulative grade-point-average, but only ENGL 100 "Basic Composition" may be used toward the 120 credits degree requirement.

FINAL EVALUATION - Students who are eligible for graduation must file an "Application for Final Evaluation" in the Office of the Registrar according to the following deadlines: October 1 for May graduation, March 1 for August graduation, June 1 for January graduation.

RESIDENCE REQUIREMENTS - A minimum of 32 credits must be taken at MSU. This must include at least 18 credits of Physics courses in the major, of which at least 12 credits must be at the junior (300-399) or senior level (400-499). The last 24 credits must be taken at MSU and cannot be acquired through transfer.

FREE ELECTIVES - Free electives are defined as credits not applicable to general education or major requirements. The exact number of free electives required by an individual student is dependent upon the collateral sequence chosen in the major (see. p.1, and worksheet p. 2).

**\*IN ALL CASES, THE MINIMUM NUMBER OF CREDITS REQUIRED TO GRADUATE IS 120 \***