



Major Map: Physics BS

Catalog Year: 2009-2010

The following is a sample course of study. It is the Student's responsibility to ensure that all program requirements are met. This guide is not a substitute for academic advisement.

Your path to graduation may vary based on factors such as college credit you earned while in high school, transfer work from other institutions of higher learning and placement in Mathematics. You are responsible for checking prerequisites to any courses.

Course Subject and Title	Hrs.	Can be Upper Division	Transfer Course	Minimum Grade if Required	Date Completed	Final Grade	Pre-requisites met	Additional Critical Tracking Notes
Fall Semester Year 1: 15 hours								
First Year Writing—GER A.1.	3	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	If student has 4 units of high school math, Algebra I or higher, Math 110 (GER B.1.) is not required.
Math 210, Calculus I (GER B.2.)	4	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Chemistry 211/211L, General Chemistry I with lab (GER F.2.)	4/1	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
A&S 100—GER D.	3	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Spring Semester Year 1: 14 hours								
Math 220, Calculus II	4	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Chem 212R/212LR, General Chemistry II with lab (GER F.2.)	4/1	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Physics 240, Physics for Science and Engineering I	5	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Summer Semester Year 1								
May use summer semester to lighten fall and spring course loads.								
Fall Semester Year 2: 15 hours								
Sophomore-level Writing course—GER A.2.	3	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Math 250, Calculus III	4	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Physics 250, Physics for Science and Engineering II	5	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Constitution—GER F.1a. <or> other GER	3	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Spring Semester Year 2: 15 hours								
Physics 330, Methods of Theoretical Physics I	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	Take and pass WEPT—GER A.3.
Physics 385L, Advanced Lab (Elementary Circuits)	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Soc & Behav Science—GER F.1b. <or> other GER	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Oral Argumentation—GER A.5 <or> other GER	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Philosophy—GER E.2. <or> other GER	3	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Summer Semester Year 2								
May use summer semester to lighten fall and spring course loads.								
Fall Semester Year 3: 15 hours								
Physics 310, Mechanics I	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Physics 350, Modern Physics with Eng Apps	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Physics 395L, Advanced Lab (Computer Interfacing); (GER D.)	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Cultural Perspectives—GER C.2. <or> other GER	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Literature—GER E.1. <or> other GER	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Elective hours	4	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Spring Semester Year 3: 16 hours								
Physics 311, Mechanics II	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	Take the MAPP exam.
Physics 4xx, Physics lab elective	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Soc & Behav Science—GER F.1b. <or> other GER	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Fine Arts—GER F.3a. <or> other GER	3	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Elective hours	4	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Summer Semester Year 3								
May use summer semester to lighten fall and spring course loads.								
Fall Semester Year 4: 15 hours								
Physics 410, Thermal Physics	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	Apply for graduation.
Physics 420, Optics	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Physics 460, Electricity and Magnetism I	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Cluster—GER F.4. <or> other GER	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Humanities—GER F.3b. <or> other GER	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Spring Semester Year 4: 15 hours								
Physics 461 Electricity and Magnetism II	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	Take the Physics Major Field exam.
Physics 472, Intro to Quantum	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Physics 4xx, Physics lab elective	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Writing Intensive course—GER A.4. (may be taken as a Physics lab elective)	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Elective hours	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	



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Non-course requirements

Written English Proficiency Test (WEPT)
University exit exams (MAPP and/or Major Field)

Met

The School reserves the right to make changes in courses, degree requirements and course schedules without notice.

Students are expected to maintain a quality of achievement significantly above minimum UMKC standards for degree work. Individual student progress will be monitored throughout the program. Satisfactory progress is required of all students for retention in the program. Students are expected to maintain academic standards, perform satisfactorily in courses, refrain from academic dishonesty, comply with the established University and teacher education timetables and requirements, and refrain from unethical or unprofessional behavior or behaviors that obstruct the training process or threaten the welfare of the student or others. Other circumstances involving student behavior will be addressed by the faculty on an individual basis.

Graduation Requirements Summary:

Total Hours (120 minimum)	Total Upper-level (300/400) Hours (36 minimum)	Final Consecutive Hours at UMKC (30 hours minimum)	Major GPA (2.0 minimum)	University of Missouri GPA (2.0 minimum)

All students completing a Bachelor of Arts or a Bachelor of Science in the College of Arts and Sciences must successfully complete the following requirements in order to graduate:

Please see this website for a detailed listing of approved courses to fulfill the following General Education Requirements (GER):
<http://www.umkc.edu/catalog/2008-09/undergraduate/pg454.html>

A. Communication (12 credit hours)

1. First Year Writing course
2. Sophomore-level Writing Intensive course
3. Passage of the UMKC [Written English Proficiency Test \(WEPT\)](#), the pre-requisite for any Junior/Senior-level (300/400) Writing Intensive course
4. Junior/Senior-level (300/400) Writing Intensive (WI) course
5. Oral argumentation course

B. Mathematical, Symbolic and Logical Reasoning (6 credit hours minimum)

1. First-level Mathematics course or demonstrated competency equivalent to four units (years) of high school math, beginning with Algebra I or higher
2. Second-level Mathematics course requiring extensive use of mathematical, symbolic or logical reasoning

C. Foreign Language and Culture (16 credit hours)

1. Three semesters of the same foreign language, required for all B.A. degrees (but not for B.S. degrees, as of Spring 2002)
2. Cultural Perspectives of an interdependent global environment

D. Computer and Information Technology (3 credit hours)

Competence equivalent to a programming course or software application course that includes substantial computer experience

E. Literature and Philosophy (6 credit hours)

1. Literature course
2. Philosophy course

F. Distribution Requirements for General Education

1. Social and Behavioral Sciences (three courses, 9 hours), chosen from at least two different departments:
 - a. Constitution Requirement—One course covering the United States Constitution and the Missouri State Constitution
 - b. Distribution Electives—Two courses from the social and behavioral sciences
2. Physical & Biological Sciences (two courses, 8 hours minimum, including one lab component)
3. Humanities and Fine Arts (two courses, 6 hours):
 - a. Fine Arts course
 - b. Humanities course
4. Interdisciplinary Cluster Course (one course, 3 hours). Every student is required to complete a junior/senior interdisciplinary cluster course.

A maximum of 3 hours of one-credit activity courses in physical education may be applied toward the 120 total minimum

All students completing a Bachelor of Science degree in Physics must meet the following conditions:

- A minimum 2.0 GPA is required for all courses fulfilling major requirements.
- A minimum of 60 combined hours of math and science is required for any B.S. degree.

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