

Four-Year Graduation Plan - Courses and Critical Benchmarks

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. **All incoming freshmen must develop an academic plan (which maps out all courses needed to graduate within your intended major/degree). Your academic advisor is available to meet with you and create your specific plan.**

*Your path to graduation may vary slightly 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. Critical Courses and minimum recommended grades (as noted below) provide feedback regarding major fit and help indicate likelihood of successful completion of chosen academic program and degree.*

First Math	MATH 110 or MATH 116, or 200-level MATH/STAT	Foreign Language Requirement	No	Free Elective Hours	8-13
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Critical Course or Benchmark	Course Subject, Number, and Title and Academic Plan Benchmarks Bold = UMKC General Education Core Requirement *Prerequisite May Be Required **Co-Requisite Enrollment Required	Min Recom Grade	Credit Hours (CH)	Notes
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Fall Semester Year 1: 14-17 hours

	<b>**Anchor I: Reasoning and Values</b> <a href="#">Click for options</a>		3	The <a href="#">ALEKS Math Placement Exam</a> is required prior to enrollment in MATH 120 (or Math 210, unless pre-requisite course has been taken with C- or higher).  MATH 120 or MATH 210 fulfills the CAS Math Requirement.
	<b>**DISC 100: Reasoning and Values</b> (Speech and Writing)		3	
◆	*MATH 210: Calculus I or MATH 120: Precalculus or MATH 125: Trigonometry (if MATH 110 has been completed for college credit already)	B	2 - 5	
◆	COMP-SCI 101: Problem Solving And Programming I	B	3	
	<b>Focus A: Arts and Humanities</b> <a href="#">Click for options</a>		3	
◆	Complete Anchor I and DISC 100. Complete 15 term hours toward degree (recommended), 12 minimum (required). Earn minimum 2.000 term GPA and earn minimum 2.000 cumulative UM GPA.			

Spring Semester Year 1: 15 hours

◆	*PHYSICS 240: Physics For Scientists and Engineers I	B	5	MATH 210 or 220 fulfills CAS Math Requirement
◆	*MATH 220: Calculus II or *MATH 210: Calculus I	B	4	
	<b>Focus B: Scientific Reasoning and Quantitative Analysis</b> ASTR 150: Motions of the Cosmos (even years) or ASTR 155: Starlight and Star Stuff (odd years)	A	3	PHYSICS 240L fulfills CAS Laboratory Experience Requirement
	CAS Degree Requirement		3	
◆	Complete 15 term hours toward degree (recommended), 12 minimum (required). Complete 30 total credit hours minimum toward degree. Complete three of four Core Focus Requirements. Earn minimum 2.000 term GPA and earn minimum 2.000 cumulative UM GPA.			

Summer Semester Year 1: 0-4 hours if all previous courses completed

	May use summer semester ensure completion of 30 hours per academic year or to lighten fall and spring course loads.			
◆	Complete MATH 220: Calculus II.			

Fall Semester Year 2: 15 hours

	<b>**Anchor II: Culture and Diversity</b> <a href="#">Click for options</a>		3
	<b>**DISC 200: Culture and Diversity</b> (Speech and Writing)		3
◆	*PHYSICS 250: Physics For Scientists and Engineers II	B	5
◆	*MATH 250: Calculus III	B	4

◆ Complete Anchor II and DISC 200.  
 Complete 15 term hours toward degree (recommended), 12 minimum (required).  
 Earn minimum 2.000 term GPA and earn minimum 2.000 cumulative UM GPA.

Spring Semester Year 2: 14 hours

◆	*PHYSICS 350: Modern Physics		3
	*ASTR 353: Practical Astronomy (even year) or *PHYSICS 410: Thermal Physics (odd year)		3
◆	CHEM 211: General Chemistry I		4
◆	**CHEM 211L: Experimental Chemistry I		1
	<b>Focus Elective:</b> ASTR 150: Motions of the Cosmos (even years) or ASTR 155: Starlight and Star Stuff (odd years)	A	3

Take the **RooWriter Writing Assessment** the semester immediately following DISC 200 and at least a semester before registering for a Writing Intensive course.

◆ Complete RooWriter Writing Assessment.  
 Complete 15 term hours toward degree (recommended), 12 minimum (required).  
 Complete 60 total credit hours toward degree.  
 Earn minimum 2.000 term GPA and earn minimum 2.000 cumulative UM GPA.  
 Complete 31 total credit hours toward degree.

Summer Semester Year 2: 0 hours if all previous courses completed

	May use summer semester ensure completion of 30 hours per academic year or to lighten fall and spring course loads.		
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Fall Semester Year 3: 15 hours

	<b>**Anchor III: Civic and Community Engagement</b> <a href="#">Click for options</a>		3
	<b>**DISC 300: Civic and Community Engagement</b> (Speech and Writing)		3
	*PHYSICS 310: Mechanics I		3
	*PHYSICS 330: Methods Of Theoretical Physics I		3
	*ASTR 355: Stellar Astrophysics (even year) or *ASTR 356: Galaxies (odd year)		3

◆ Complete Anchor III and DISC 300.  
 Complete 15 term hours toward degree (recommended), 12 minimum (required).  
 Earn minimum 2.000 term GPA and earn minimum 2.000 cumulative UM GPA.

Spring Semester Year 3: 15 hours

	*PHYSICS 311: Mechanics II		3
	*ASTR 353: Practical Astronomy (even year) or *PHYSICS 410: Thermal Physics (odd year)		3


POL-SCI 210, HISTORY 101, or HISTORY 102 fulfill **Focus C: Human Actions, Values, and Ethics** as well as the Missouri Constitution requirement.

# UMKC Major Map: Bachelor of Science in Physics (Astronomy Emphasis)

First-Time College Students

Catalog Year: 2015 - 2016

	<b>Focus C: Human Actions, Values, and Ethics</b> <a href="#">Click for options</a> (May choose Focus C Course to also fulfill MO Constitution Requirement)		3	
	Missouri Constitution course (if not fulfilled by above) <a href="#">Click for options</a> OR other CAS Social & Behavioral Sciences Requirement <a href="#">Click for options</a>		3	
	Free Elective (*PHYSICS 499: Undergraduate Research recommended)		3	


 Complete 15 term hours toward degree (recommended), 12 minimum (required). Earn minimum 2.000 term GPA and earn minimum 2.000 cumulative UM GPA.

## Summer Semester Year 3: 0-3 hours

	Recommend summer research project internship or PHYSICS 499.			
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## Fall Semester Year 4: 15 hours

	*ASTR 355: Stellar Astrophysics (even year) or *ASTR 356: Galaxies (odd year)		3	Apply for graduation and complete Final Degree Audits for the following: UMKC General Education Core, CAS Degree Requirements, Major Requirements, and/or Minor Requirements.  Take the ETS Proficiency Profile (EPP) exit exam.
	*PHYSICS 460: Electricity And Magnetism I		3	
	*PHYSICS 472: Introduction To Quantum Mechanics		3	
	*PHYSICS 476LW: Advanced Lab (odd year) or *PHYSICS 395LW: Computer Interfacing Lab (even year) – CAS Writing Intensive Requirement		3	
	CAS Arts & Humanities Requirement <a href="#">Click for options</a>		3	

 Complete 15 term hours toward degree (recommended), 12 minimum (required). Earn minimum 2.000 term GPA  
Earn minimum 2.000 cumulative UM GPA

## Spring Semester Year 4: 12-15 hours

	*ASTR 465: Cosmology (odd year) or *PHYSICS 410: Thermal Physics (even year)		3	In combination with required upper-level courses, take enough Free Elective hours at the 300/400-level to meet the minimum requirement of 36 upper-level credit hours.  Take Major Field (MF) exam.
	*PHYSICS 461: Electricity And Magnetism II		3	
	CAS Social & Behavioral Sciences Requirement <a href="#">Click for options</a>		3	
	CAS Arts & Humanities Requirement <a href="#">Click for options</a>		3	
	<i>Free Elective (only take these credits if needed to reach 120 minimum hours)</i>		0-3	

 Complete 15 term hours toward degree (recommended), 12 minimum (required). Earn minimum 2.000 term GPA and earn minimum 2.000 cumulative UM GPA.

## Graduation Requirements Summary

<b>Total Degree Credit Hours</b>	<b>Upper Level (3xx/4xx) Hour Requirement</b>	<b>Minimum Hour / Residency Req.</b>
120	36	30
<b>Major GPA</b>	<b>UM GPA</b>	<b>Other GPA Requirements</b>
		<b>Other</b>

2.0

2.0

## Policy

**Non-course requirements**

RooWriter Writing Assessment  
ETS Proficiency Profile (EPP) exam  
Major Field (MF) exam

**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.

## Academic and Career Advising

College of Arts and Sciences Advising  
09 Scofield Hall (Basement)  
816.235.1148  
<http://cas.umkc.edu/advising/default.asp>

**UMKC Career Services Resources:** <http://www.career.umkc.edu/?q=node/87>  
**O\*Net OnLine:** <http://www.onetonline.org/find/>