# Missouri State University Curricular Proposal Program Change or Deletion



Department Biology		· · ·	Date August 2	29, 2013
Title of Program Affected Biolog	y Minor, Bacl	nelor of Science	· .	
MajorComprehensive MajorOption Present Catalog Description (Cut and paste from web catalog or use most recent de	Minor X	Revised Catalog Descripti		Other
Minor(s) Biology Bachelor of Science A. BIO 121(4), 122(4), 235(4) B. Additional biology electives hours.	to total 20	Minor(s) Biology Bachelor of Scien A. BIO 121(4),		otal <del>20</del> <b>19</b>
What is changing? Check all boxes that apply Title change Course changes of under 18 hours Course changes of 18 hours or more	From opt	ion to program (major) gram (major) to option or option deletion	X Other credit	hours
REASON FOR PROPOSED CHANGE  After completing the three required courses, st minor. This generally requires two laboratory minors unless they complete an extra course.	courses (4 hour The Biology De	s each), effectively makin partment offers several 3-	g 3-hour courses unavaila hour courses that are part	able to icularly
appropriate for some of our minors. Reducing taking one 4-hour elective and one 3-hour elections.	ctive.	irom-29 to 19 would allov	a student to complete in	e minor by
Minor(s) Biology				
Bachelor of Science A. BIO 121(4), 122(4), 235(4) B. Additional biology electives to	total 19 hou	Property of the state of the st	m . 1 m :	10
DEPARTMENT: Route according to ART VI, SI signed forms to <u>one</u> of the following (please If the program needs to go through more tha council/ committee marked.	check all that a	pply and send to first cou	ncil/committee marked)	originally
X College Council		graduate program changes t ling either to PEC, CGEIP, or		irst step
Professional Education Committee	(Considers all p Specialist degr	program changes affecting BS ees)	and MS in Education and E	ducational
Committee on General Education and Intercollegiate Programs	(Considers all g	general education and multi-	college program changes)	
Graduate Council	(Considers all g	graduate-level program chan	ges)	
Signature A Matha Department Head	· ·	Date	5-29-13	· · · · · · · · · · · · · · · · · · ·

(Routing on Reverse Side)

FS Program Change - 9/10/2010



# Missouri State University Curricular Proposal Course Change or Deletion

Department Biology		· · · · · · · · · · · · · · · · · · ·		Date8/	26/2013	· ·
Check one: This is a chang	e to x an exis	ting COURSE				
J		_	i.e. perma	nent) SECTION	of a variable cont	ent course
Present Catalog Descripti (Cut and paste from web catalo		escription.)			<b>tion</b> strikethrough all deletion	ns, and insert and
BIO 197 Selected Topics in Riold Prerequisite: permission of inst Course devoted to a biologic to topics are different, the course credit. Credit for this course car requirements of a major or min (natural sciences) requirement. Credit hours:1 Lecture contact Typically offered: Upon demand	ructor. pic of current interest. may be repeated to a t anot be applied to the r or in biology, or the gen hours:0-1 Lab contact	otal of 4 hours minimum neral education	BIO 197 Se Prerequisit Course dev topics are credit. Cre requireme (natural so section). Credit hou	elected Topics in Bic te: permission of in- voted to a biologic to different, the cours dit for this course c nts of a major or m iences) requiremen	structor. copic of current interes e may be repeated to annot be applied to th inor in biology, or the it. Supplemental cours act hours:0-14 Lab co	a total of 4 hours ne minimum general education se fee (variable by
What is changing? Check all b						
□Course Deletion □C xCredit Hours/Contact Hou	ourse Code rs	□Course Nui □Periodicity		<ul><li>□Title</li><li>□Description</li></ul>	□Prerequisite	
course; it is appropriate that studies allow faculty flexibility for offering allow faculty flexibility for offering the course of the course devoted to a biologic topic Credit for this course cannot be a requirement. Supplemental course Credit hours:1-4 Lecture contact Check if this is a non-substate Faculty Senate; 600- through 900-lever	g the most appropriate  FORMATION (typed) y ctor. c of current interest. Pr pplied to the minimum se fee (variable by secti hours:0-4 Lab contact l ntive change. Distribution	credit for indeper ovided the topics requirements of a on). hours:0-8 Typical on for non-substanti	are different a major or m ly offered: U ve changes of	t, the course may be inor in biology, or to pon demand 100-through 500-leve	e repeated to a total o he general education el courses: two originally	of 4 hours credit. (natural sciences) -signed copies to
approval.  Substantive Change: Department rou (please check all that apply and send form for each additional council/com	tes according to ART VI, S to first council/committee	EC 3B(1-4) of Bylaws marked). If proposa	of the Faculty	/. Forward <u>three</u> origi through more than or	nally signed forms to <u>one</u> ne council/committee, fo	of the following
College Council	approv commi The las	al, College Counci ttee/council or dir t level of committ	l will forward ectly to the	d appropriate numb Faculty Senate if no	t go through College C per of copies to the ne: of urther committee ap ginally signed copies to	xt oproval is needed.
Professional Education Com	Metho	iers all substantive ds courses.)		_	al Education courses a	_
and Intercollegiate Program			. 554,56 6,14		sacron and microone	D. week I Tobildill
Graduate Council	(Consid	ders all 600-900 le	vel course ch			
Signature Department	Office Head	·		Date	26-13	<del></del> .

# Missouri State University CURRICULAR PROPOSAL



# NEW COURSE (or new REGULAR SECTION of an existing variable content course)

DepartmentCHM	Date XX
Check one:XNew COURSE section of an existing variable topics of	_New REGULAR (i.e. permanent) SECTION of an existing variable content course. If a new regular course, to what existing course is it to be attached?
PROPOSED CATALOG DESCRIPTION	
CHM 202 Essentials of Organic Che	mistry Laboratory
chemistry and biochemistry. Does not a	IM117 or CHM 161; "C-" grade or better in CHM201 or concurrent enrollment. Principles of organic apply toward a chemistry major or minor if the student passes CHM 342. Emphasis on experiments and aterial in CHM201. May not be taken Pass/Not Pass. Supplemental course fee. 2(0-3) F,S
PURPOSE OF COURSE	
is the associated lab (CHM202). This will:	201 (lecture only) are being altered to have a single course which is lecture only (CHM201) and a single course that alleviate problems with student registration and advising associated with transfer credits from institutions where g is now consistent with the rest of the course numberings in the department.
There have been a large number of transfer these courses. The Registrar's office sugge	credit problems associated with these courses. This will also allow for separation of grades in the performance of sted structuring these proposed changes in this fashion to alleviate as many registration problems as possible.
These materials have been sent to PEC as a	courtesy, in regards to other associated course changes.
RELATIONSHIP TO OTHER DEPARTMEN	¥TS
300a/05) and forward three typed, ori	T VI, SEC 3B(1-4) of Bylaws of the Faculty. Attach New Course Resource Information form (FS iginally signed forms to one of the following (please check all that apply and send to first urse needs to go through more than one council/committee forward one additional form for each.
X College Council	(All new course proposals numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/ council or directly to the Faculty Senate if no further committee approval is needed.)
X Professional Education Committee	(Considers all new courses affecting BS and MS in Education and Educational Specialist degrees)
Committee on General Education and Intercollegiate Programs	(Considers all general education and multi-college new course proposals)
Graduate Council	(Considers all 600-, 700-, and 800-level new courses)
If the course needs to go through more than	me council/committee, forward one additional form for each additional council/committee marked.
ignature Department Head	Date 4/10/13

(Routing on Reverse Side)

FS New Course - 9/10/2010



# Chemistry 202 – Lab Syllabus – Fall 201XX

Lab Section: Lab Instructor Office: Office Hours: Phone number: Email: Required Items:

- 1. **Laboratory Manual**: Chemistry 202 Lab Manual; the laboratory manual is a spiral-bound collection of experiments from Chemical Education Resources (CER).
- 2. A scientific calculator bring this with you to each scheduled laboratory and exam.
- □ Be sure you know how to use your calculator, especially how to enter scientific notation and how to control display formats.
- ☐ You may not use any electronic device capable of displaying extensive text or programmed calculations. Cell phones and similar communication devices may not be used for any examinations or quizzes (note that this does not include calculators normally used in math classes, such as HP 80 and 90 series).
- 3. A pair of ANSI Z-89 approved safety goggles and a pair of shoes that cover the entire foot (closed-toed and closed-heeled) bring these with you to each scheduled laboratory. YOU WILL NOT BE ALLOWED TO WORK IN THE LAB WITHOUT APPROVED GOGGLES OR APPROVED SHOES!!!!!!
- 4. You will be required to participate in the Blackboard website for this course.

### Goals of the CHM 202 Lab:

Students completing the laboratory portion of CHM 202 will:

- 1. Learn to work safely in a laboratory environment, including the proper technique and safe handling of chemicals and laboratory equipment.
- 2. Have the basic analytical and technical skills to work effectively in a laboratory environment.
- 3. Learn to work as an effective team member with other students in the laboratory.
- 4. Develop the ability to perform accurate quantitative and qualitative measurements as they relate to Organic Chemistry
- 5. Have the ability to use information technology tools such as the internet and Blackboard as well as printed literature resources to locate and retrieves scientific information needed for laboratory work.
- 6. Have the ability to present scientific and technical information resulting from laboratory experimentation in both written and oral formats.
- 7. Learn appropriate use of key measurement techniques used in a chemistry laboratory.
- 8. Interpret and generate visual information.

### Attendance:

**ATTENDANCE AT LAB IS REQUIRED**. There will be **NO MAKE UP** on labs. You will be allowed to drop your lowest lab score, so this may be used for an absence as explained in the laboratory grading policy below. You will receive a score of zero for all labs that you do not attend.

### Laboratory Grading/Reports:

- □ There will be a 10 point quiz for each experiment, given on the Blackboard website, which must be completed before lab each week. The quiz will be based on the Prelab Lecture and Prelab Questions for the lab. You will be allowed to drop your lowest quiz score. If you miss a quiz, it will be graded as a zero and used as your lowest quiz score, which subsequently will be dropped. If you miss more than one quiz, each additional absence will count as a zero.
- □ Each lab report will be graded on a 25-point basis. Lab reports will consist of pre-lab questions, raw data and data analysis, and post-lab questions, and will be completed and turned in before the end of lab each week. Twelve experiments will be conducted. The best 11 report grades will be counted toward your lab score. You will be allowed to drop your lowest report score. If you miss an experiment, the report will



be graded as a zero and used as your lowest report score, which subsequently will be dropped. If you miss more than one report, each additional absence will count as a zero.

Two 100-point laboratory practical exams will be given during the semester.

35 points prelab lecture attendance 110 points 12 quizzes, 10 pts each, top 11 counted 275 points 12 Lab reports, 25 pts each, top 11 counted 100 points Midterm Laboratory Exam 100 points Final Laboratory Exam

### **620 points TOTAL POSSIBLE**

Your total grade for lab will be reported to your CHM 202 lecture instructor as a percentage of total points earned. The percentage of your total CHM 202 grade to be determined by the lab is at the discretion of your lecture instructor; check with him or her for further information regarding this policy. It is recommended that you keep all of your lab reports until the end of the semester to study for the exams and as proof of your grade.

### Lab drawers and working areas:

There will be "common" lab drawer, cupboard and work areas for each pair of students in the lab. These drawers are "common" to all lab sections, i.e. students in each of the four lab sections will share the same areas and materials. Therefore, it is important that you and your partner keep these areas neat and fully stocked so that persons working in the lab after you have everything available. Always clean your work area upon completion of each laboratory. Failure to do so will result in a loss of points for that lab. Punctuality:

The first several minutes of the laboratory are generally devoted to reviewing the procedure(s) to be performed and the safety information. If you miss this review, you may not be allowed to perform the laboratory for safety reasons and you will receive a zero for that lab. Plan to be on time for all lab

# periods. Preparation:

It is your responsibility to read the correct laboratory experiments and complete the prelab assignments before the beginning of the laboratory. **NOTE THAT THE LABS MAY NOT BE DONE IN THE ORDER GIVEN IN THE BOOK.** Absence at the prior laboratory is not an excuse for not knowing the assignment. Refer to the laboratory schedule to determine which lab will be performed for a given date. At the discretion of your laboratory instructor, you may be denied the opportunity to perform the laboratory experiments if you fail to demonstrate an understanding of the lab being performed that day. **Safety:** 

Federal and state law requires that safety goggles be worn in all chemistry laboratories. You must purchase and wear a pair of safety goggles that meet the ANSI Z87.1989 Standard and State of Missouri Standards at all times you are in the laboratory. Visorgogs are acceptable and are available at the Missouri State Bookstore. In general, you will not remove your safety goggles until you leave the laboratory. A first offense of not wearing safety goggles will receive a warning from the laboratory instructor. A second offense will result in your being asked to leave the laboratory and will result in a zero score for that experiment.

Be sure to know where all safety equipment (eye wash stations, fire extinguisher, safety shower) is located. Also, know where exits are located in case of an emergency. Materials Safety Data Sheets (MSDS) are available in the chemical stock room (Temple Hall 403) for any student wishing to obtain further information concerning the chemicals being used in each experiment. Alternately, MSDS may be looked up online.



### **University Policies:**

**NONDISCRIMINATION**: Missouri State University is an equal opportunity/affirmative action institution, and maintains a grievance procedure available to any person who believes he or she has been discriminated against. At all times, it is your right to address inquiries or concerns about possible discrimination to the Office for Equity and Diversity, Park Central Office Building, 117 Park Central Square, Suite 111, (417) 836-4252. Other types of concerns (i.e., concerns of an academic nature) should be discussed directly with your instructor and can also be brought to the attention of your instructor's Department Head. Please visit the OED website at www.missouristate.edu/equity/.

**DISABILITY ACCOMMODATION**: To request academic accommodations for a disability, contact the Director of the Disability Resource Center, Plaster Student Union, Suite 405, (417) 836-4192 or (417) 836-6792 (TTY), www.missouristate.edu/disability. Students are required to provide documentation of disability to the Disability Resource Center prior to receiving accommodations. The Disability Resource Center refers some types of accommodation requests to the Learning Diagnostic Clinic, which also provides diagnostic testing for learning and psychological disabilities. For information about testing, contact the Director of the Learning Diagnostic Clinic, (417) 836-4787, http://psychology.missouristate.edu/ldc.

**ACADEMIC INTEGRITY**: Missouri State University is a community of scholars committed to developing educated persons who accept the responsibility to practice personal and academic integrity. You are responsible for knowing and following the university's **Student Academic Integrity Policies and Procedures**, available at www.missouristate.edu/policy/academicintegritystudents.htm. You are also responsible for understanding and following any additional academic integrity policies specific to this class (as outlined by the instructor). Any student participating in any form of academic dishonesty will be subject to sanctions as described in this policy. If you are accused of violating this policy and are in the appeals process, you should continue participating in the class.

**CLASS DROPS**: It is your responsibility to understand the University's procedure for dropping a class. If you stop attending this class but do not follow proper procedure for dropping the class, you will receive a failing grade and will also be financially obligated to pay for the class. For information about dropping a class or withdrawing from the university, contact the Office of the Registrar at 836-5520.

evacuation must discuss their needs with their professors and Disability Services. If you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible. For additional information students should contact the Disability Resource Center, 836-4192 (PSU 405), or Larry Combs, Interim Assistant Director of Public Safety and Transportation at 836-6576. For further information on Missouri State University's Emergency Response Plan, please refer to the following web site: http://www.missouristate.edu/safetran/erp.htm

OFFICIAL CELL PHONE POLICY: As a member of the learning community, each student has a responsibility to other students who are members of the community. When cell phones or pagers ring and students respond in class or leave class to respond, it disrupts the class. Therefore, the Office of the Provost prohibits the use by students of cell phones, pagers, PDAs, or similar communication devices during scheduled classes. All such devices must be turned off or put in a silent (vibrate) mode and ordinarily should not be taken out during class. Given the fact that these same communication devices are an integral part of the University's emergency notification system, an exception to this policy would occur when numerous devices activate simultaneously. When this occurs, students may consult their devices to determine if a university emergency exists. If that is not the case, the devices should be immediately returned to silent mode and put away. Other exceptions to this policy may be granted at the discretion of the instructor.

[Instructors note: This policy will also extend to use of Instant Messaging, text messaging, via cell phone, handheld, laptop, or any other method of utilizing cooperation between the student and an external source.]



## MoSTEP High School (9-12) Chemistry (Categorical) Subject Area Competencies:

In completing this course, the beginning (preservice) Chemistry 9-12 teacher will demonstrate knowledge of and/or competency in the following areas of study:

- 1: Unifying Concepts and Processes The beginning teacher of science is familiar with, and teaches, the major concepts and principles that unify all scientific effort and that are used in each of the science disciplines (1997 SSC: 1.2; CR GenEd, III.Sc- Chem; NSTA [2001]: Standard 1; NSTA [1998], Standard 1; NSES: UCP- 1-5.
- 1.1 systems, order, and organization;
- 1.2 evidence, models, and explanation;
- 1.3 change, constancy, and measurement;
- 1.4 evolution and equilibrium; and
- 1.5 form and function
- 2: Science As Inquiry The beginning teacher of science understands and practices the science inquiry process. (1997 SSC: 1.1, 1.4; CR GenEd, III.Sc- Chem; NSTA [2001]: Standard 3, 9; NSTA [1998], Standard 3, 9; NSES: HA1, A2; S 1, 2, 7-81; ETS 0245: VI, VII)
- 2.1 identify questions and concepts that guide scientific investigations.
- 2.2 design and conduct scientific investigations, including understanding of the major concepts in the area being investigated, of proper equipment, of safety precautions; resolving methodological problems; using technologies; clarifying ideas that guide the inquiry; and obtaining scientific knowledge from sources other than the actual investigation; clarifying the question, method, controls, and variables; organizing and displaying data; revising methods and explanations; and public presentation of the results with a critical response from peers; using evidence; applying logic; and constructing an argument for the proposed explanations.
- 2.3 use appropriate tools (e.g., hand tools, measuring instruments, calculators, and computers for the collection, summary, and display of evidence), techniques, and mathematics to gather, analyze, and interpret data, including selecting the scientific apparatus or instrument appropriate to a specified laboratory or field task and identifying proper operation of such equipment; using the metric system of measurement, recognizing equivalents within that system and selecting units appropriate to a given laboratory or field task; converting between scientific notation and conventional numerals and using scientific notation to perform calculations.
- 2.4 formulate and revise scientific explanations and models using logic and evidence, including discussing, formulating, and revising an explanation or physical, conceptual, and/or mathematical models based on scientific knowledge, use of logic, and evidence from the investigation.
- 2.5 think critically and logically to make the relationships between evidence and explanations, including deciding what evidence should be used and accounting for anomalous data; reviewing data from an experiment, summarizing the data, and forming a logical argument about the cause-and-effect relationships in the experiment; and stating some explanations in terms of the relationship between two or more variables.
- 2.8 use mathematics in all aspects of scientific inquiry to ask questions; to gather, organize, and present data; and to structure convincing explanations.
- 2.9 handle, label, store, and dispose of chemicals, electrical equipment, and scientific apparatuses and take actions to prevent or report an emergencies, including, but not limited to, general first aid as it relates to incidents in the science classroom or laboratory. (NSTA 9.b)
- 3: Physical Science The beginning teacher of science understands the central concepts, tools of inquiry, and structures of the physical sciences and makes these aspects of subject matter meaningful for students. (1997 SSC: 2.1-2.8; CR GenEd, III.Sc-Chem; NSTA [2001]: Rationale; Standard 1; NSTA [1998], Standard 1; NSES: H-B1, B2, B3, B5, B6; S 1, 2, 7-8; ETS 0245: I, II, IV)
- 3.1 Structure of Atoms (NSES: H-B1)

- 3.2 Structure and Properties of Matter (1997 SSC: 2.1-.8; NSES: H-B2)
- 3.3 Interactions of Energy and Matter (1997 SSC: 2.1-.8; NSES: H-B6)
- 3.4 General Chemistry and Chemical Reactions in Physical and Life Science (1997 SSC: 2.2-.5; NSES: H-B3)
- **6: Science and Technology** The beginning teacher of science understands the relationship between science and technology, can distinguish between natural objects and objects made by humans, and makes these aspects of subject matter meaningful for students by creating experiences in making models of useful things and by developing students' abilities to identify and communicate a problem and to design, implement, and evaluate a solution. (1997 SSC: 1.3, 1.4; NSTA [2001], Standards 4, 5.d; NSTA [1998] Standards 2, 4, 5; NSES: H-E1, E2, E3; S 8; ETS 0245: VI)
- 6.6 use computer and related technologies to extend investigative activities (NSES: H-E2)
- 6.7 identify and organize materials and other resources, choose suitable tools and techniques, and work with appropriate measurement methods to ensure adequate accuracy in the implementation of a proposed design. (NSES: H-E1)
- 6.8 analyze and interpret data obtained from an experiment or investigation, including graphical data, and identify and demonstrate an understanding of sources of error in data that is presented (NSES: H-E1)
- 6.9 demonstrate understanding of scientific measurement and notation systems, including systems for describing very large and very small units (NSES: H-E1)
- 6.10 collaborate as a team-member in the identification, communication, and resolution of scientific and technological problems. (NSES: H-E2)
- 6.12 use words, drawings, and models to communicate the process and products of technological design and scientific investigation (NSES: H-E1)
- 6.13 use criteria relevant to the original purpose or need to evaluate completed technological designs or products (NSES: H-E1)
- MoSTEP 1.2.1.1: Unified Science 9-12 with Chemistry Competencies Approved by MSBE: 8/2008 The beginning (preservice) Unified Science 9-12: Chemistry teacher will demonstrate knowledge of and/or competency in the following areas of study:
- 1. Unifying Concepts (1997 SSC: 1.2, 1.4; NSTA [2003]: C.1; NSES: UCP-1-5)
- 1. Multiple ways our perceptions of the world are organized and how we use systems to organize the studies and knowledge of science. 2. Nature of scientific evidence and the use of models for explanation.
- 3. Measurement as a way of knowing and organizing observations of constancy and change. 4. Evolution of natural systems and factors that result in evolution or equilibrium. 5. Interrelationships of form, function, and behaviors in living and nonliving systems.
- 3. Inquiry (1997 SSC: 1.1, 1.4; CR: see note RE: Methods course; 1.1; NSTA [2003] 3; NSES: H-A1, A2; S 1, 2, 7-8; Praxis 0245: VI); NSES (NRC, 2000)
- 1. The processes, tenets, and assumptions of multiple methods of inquiry leading to scientific knowledge. 3. Engage scientifically oriented questions, give priority to evidence, formulate explanations from evidence, connect explanations to scientific knowledge, and communicate and justify explanations to others.
- 5. Safety and Welfare (1997 SSC: 1.7; CR: see DESE CR note RE: Methods course; NSTA [2003] 9.b, 9.c, 9.a; Praxis 0245: VII)
- 1. Handle, label, store, & dispose of chemicals, electrical equipment, & scientific apparatuses & take actions to prevent or report emergencies, including, but not limited to, general first aid as it relates to incidents in the science classroom or laboratory.
- 6. Chemistry Core Competencies (1997 SSC: 2.1-.8; NSTA C.3.a; CR: 2.c; NSES: H-B1, B2, B3, B5, B6; S 1, 2, 7-8; Praxis 0245: II, III, IV, V)
- 1. Fundamental structures of atoms and molecules. 2. Basic principles of ionic, covalent, and metallic bonding. 3. Physical and chemical properties and classification of elements including periodicity. 6. Mole

concept, stoichiometry, and laws of composition. 7. Transition elements and coordination compounds.

- 9. Fundamental biochemistry. 10. Functional and polyfunctional group chemistry. 12. Fundamental processes of investigating in chemistry, including laboratory skills.
- 9. Physics Core Competencies (1997 SSC: 3.1-.7; CR: V.2.d; NSTA [2003]: C.5; NSES: H-B1, B2, B3, B5, B6; S 1, 2, 7-8; Praxis: ETS 0245: I, II, IV))
- 5. Physical properties of matter.
- 10. Chemistry Advanced Competencies (1997 SSC: 2.1-.8; NSTA C.3.b; CR: 2.c, 2.g; NSES: H-C1, C2, C5, C6; S 3, 4, 7-8; Praxis 0245: II, III, IV, V)
- 1. Molecular orbital theory, aromaticity, metallic and ionic structures, and correlation to properties of matter. 6. Major biological compounds and natural products. 7. Solvent system concepts including non-aqueous solvents. 8. Chemical reactivity and molecular structure including electronic and steric effects.
- 9. Organic synthesis and organic reaction mechanisms. 15. Systematic nomenclature of ionic and molecular compounds, including acids, and of organic compounds, including their functional groups.

# CHM 200 LABORATORY SCHEDULE – FALL 2012

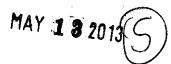
Mon	Tues	Wed	Thurs	Fri
20-Aug	21-Aug Intro/Safety/TECH 701	22-Aug	23-Aug Safety/TECH 701: MP of	24-Aug
	prelab		Comp/Mix	
27-Aug	28-Aug	29-Aug	30-Ang	31-Aug
	TECH 703 prelab		TECH 703: Purifying Acetanilide	$\label{eq:constraints} \begin{split} \mathcal{L}_{\mathrm{const}} &= \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} \\ &= \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} \\ &= \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} \\ &= \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} \\ &= \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} + \mathcal{L}_{\mathrm{const}} \\ &= \mathcal{L}_{\mathrm{const}} + \mathcal{L}_$
3-Sep	4-Sep	5-Sep	6-Sep	7-Sep
Labor Day Holiday	Solubilities Prelab		Solubilities (Handout)	
10-Sep	11-Sep	. 12-Sep	13-Sep	-14-Sep
	ANAL 445 prelab		ANAL 445: Sep/ID of Dyes by TLC	
17-Sep	18-Sep	19-Sep	20-Sep	21-Sep
	SYNT 471 prelab		SYNT 471: Iso, Caff. from Tea	
24-Sep	25-Sep	26-Sep	27-Sep	28-Sép
	TECH 705 prelab		TECH 705: Sep. Acids &	Kangara Tari
	<u> </u>		Neut. Comp.	ne di kacamatan
I-Oct	2-Oct	3-Oct	4-Oct	5-0et
	Reitew for Midterm Exam		MIDTERMEXAM	
8-Oct	9-Oct	10-Oct	11-Oct	12-Oct
	REAC 472 prelab		REAC 472: Qual. Tests - Alkenes	and the state of t
15-Oct.	16-Oct	:17-0ct	18-0ct	19-Oct
Midterni grades Submitted	. Ta	ll Break on 18th ar	nd 19th: NO LAB THIS WEEK	
22-Oct	23-Oct	24:Oct		
1000	The second secon	24"441	25-Oct REAC 469: Qual. Tests-	26-Oct
	REAC 469 prelab		OH Group	10
29-Oct	30-Oct	31-Oct	1-Nov	2-Nov
	ANAL 727 prelab	e de la carre de la carre La glacia de la carre	ANAL 727: Class. Unk. by Funct. Group	and the second of the second
5-Nov	6-Nor	7-Nov	8-Nov	9-Nov
	REAC 716 preiab		REAC 716: Nitration (modified procedure)	anders and the second
12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
	SYNT 713 prelab		SYNT 713: Prep. Isopentyl Acetate	last day to drop/withdraw
19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
地名斯特里尔约里尔 医外侧线	9	Thanksgiving Holid	ay: NO LABS THIS WEEK	
26-Nov	27-Nov	28-Non	29-Nov	30-Nov
	tion is a proper supplement of a thought in Alberta		29-Nov PROP 319: Prep. Soap' MANDATORY CLEANUP	30-Nov
26-Nov 3-Dec	27-Nov		PROP 319: Prep. Soap	
	27-Nov PROP 319 prelab	28-Nov	PROP 319: Prep. Soap MANDATORY CLEANUP	30-Nov 7-Dec Study Day
	27-Nov PROP 319 prelab	28-Nov	PROP 319: Prep. Soap MANDATORY CLEANUP	7-Dec Study Day
3-Dec	27-Nov PROP 319 prelab 4-Dec Review for Final Exam	28-Nos 3-Dec 12-Dec	PROP 319: Prep. Soap MANDATORY CLEANUP  6-Dec  FINAL EXAM	7-Dec

# Missouri State University Curricular Proposal Course Change or Deletion

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for both CHM 200 and CHM 201. Does not apply toward a	DepartmentCHM		Date
(Cut and paste from web catalog or use most recent description.)  (Cut and paste from web catalog or use most recent description.)  (CHM 201 Essentials of Organic Chemistry  Prerequisite: a "C." grade or better in CHM 105 or CHM 106 or CHM 100. Principles of organic chemistry and biochemistry. He laboratory associated with this course is CHM 116 or CHM 200 and CHM 201. Does not apply toward a chemistry major or minor if student passes CHM 342, 3(3-0) F, S  What is changing? Check all boxes that apply.  Course Deletion   Course Code   Course Number   Title   X Prerequisite   X P	Check one: This is a change to _X_		i.e. permanent) SECTION of a variable content course
CHM 201 Essentials of Organic Chemistry  Prorequisite: a "C." grade or better in CHM 105 or CHM 106 or CHM 160. Principles of organic chemistry and biochemistry. Identical to lecture portion of CHM 201. Does not apply toward a chemistry major or minor if student passes CHM 342. 3(3-0) F,S  CHM 160. Principles of organic chemistry and biochemistry. Identical to lecture portion of CHM 200. CHM 170. Principles of organic chemistry and biochemistry. The laboratory associated with this course is chemistry major or minor if student passes CHM 342. 3(3-0) F,S  What is changing? Check all boxes that apply.  Course Deletion Course Code Course Number Title X Prerequisite  Credit Hours/Contact Hours  Reason for Proposed Change or Deletion  The courses CHM200 (lecture and lab) and 201 (lecture only) are being altered to have a single course which is lecture only (CHM201) and a sing course that is the associated bio (CHM202). This will alleviate problems with student registration and advising associated with transfer credit institutions where these courses were separate. The numbering is now consistent with the rest of the course numberings in the department. These materials have been a large number of transfer credit problems associated course changes.  Howy Did You Determine the Need For This Change or Deletion?  There have been a large number of transfer credit problems associated with the rest of the course numberings in the department performance of these courses. The Registra's office suggested structuring these proposed changes in this fashion to alleviate as many registrative problems as possible.  COMPLETE NEW CATALOG INFORMATION (typed)  CHM 201 Essentials of Organic Chemistry  Prerequisite: a "C." grade or better in CHM 170. Principles of organic chemistry associated with this course is CHM202 (Essentials of Organic Chemistry). Does not apply toward a chemistry problems as possible.  Complete New CATALOG INFORMATION (typed)  Change Council with this course is CHM202 (Essentials of Organic Chemistry). The laborato		ost recent description.)	(Cut and paste description again, strikethrough all deletions, and insert and
CHM 160. Principles of organic chemistry and biochemistry. Identical to lecture portion of CHM 200. Cannot receive redit for both CHM 200 and CHM 201. Does not apply toward a chemistry major or minor if student passes CHM 342. 3(3-0) F.S Chemistry Chemistry CHM 301 East and F.S Chemistr	CHM 201 Essentials of Organic Che	mistry	
□Course Deletion □Course Code □Course Number □ Title X Prerequisite □ Credit Hours/Contact Hours □Periodicity X Description  Reason for Proposed Change or Deletion  The courses CHM200 (lecture and lab) and 201 (lecture only) are being altered to have a single course which is lecture only (CHM201) and a single course that is the associated lab (CHM202). This will alleviate problems with student registration and advising associated with transfer credits for institutions where these courses were separate. The numbering is now consistent with the rest of the course numberings in the department. These materials have been sent to PEC as a courtesy, in regards to other associated course changes.  How Did You Determine the Need For This Change or Deletion?  There have been a large number of transfer credit problems associated with these courses. This will also allow for separation of grades in the performance of these courses. The Registrar's office suggested structuring these proposed changes in this fashion to alleviate as many registrative problems as possible.  COMPLETE NEW CATALOG INFORMATION (typed)  CHM 201 Essentials of Organic Chemistry  Prerequisite: a "C-" grade or better in CHM116 or CHM 170. Principles of organic chemistry and biochemistry. The laboratory associated with this course is CHM202 (Essentials of Organic Chemistry Laboratory). Does not apply toward a chemistry major or minor if student passes CHM 342. 3(3-0) F,S. Check if this is a non-substantive change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council will florward propiet in one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.  X_ College Council  Gaduate Council  (All substantive course changes for General Education and Intercollegiate Program proposals.)	CHM 160. Principles of organic chemical Identical to lecture portion of CHM 200 for both CHM 200 and CHM 201. Doe	stry and biochemistry.  O. Cannot receive credit s not apply toward a	CHM116 or CHM 170. Principles of organic chemistry and biochemistry. The laboratory associated with this course is CHM202 (Essentials of Organic Chemistry Laboratory). Identical to lecture portion of CHM 200. Cannot receive credit
□Course Deletion □Course Code □Course Number □ Title X Prerequisite □ Credit Hours/Contact Hours □Periodicity X Description  Reason for Proposed Change or Deletion  The courses CHM200 (lecture and lab) and 201 (lecture only) are being altered to have a single course which is lecture only (CHM201) and a single course that is the associated lab (CHM202). This will alleviate problems with student registration and advising associated with transfer credits for institutions where these courses were separate. The numbering is now consistent with the rest of the course numberings in the department. These materials have been sent to PEC as a courtesy, in regards to other associated course changes.  How Did You Determine the Need For This Change or Deletion?  There have been a large number of transfer credit problems associated with these courses. This will also allow for separation of grades in the performance of these courses. The Registrar's office suggested structuring these proposed changes in this fashion to alleviate as many registrative problems as possible.  COMPLETE NEW CATALOG INFORMATION (typed)  CHM 201 Essentials of Organic Chemistry  Prerequisite: a "C-" grade or better in CHM116 or CHM 170. Principles of organic chemistry and biochemistry. The laboratory associated with this course is CHM202 (Essentials of Organic Chemistry Laboratory). Does not apply toward a chemistry major or minor if student passes CHM 342. 3(3-0) F,S. Check if this is a non-substantive change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council will florward propiet in one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.  X_ College Council  Gaduate Council  (All substantive course changes for General Education and Intercollegiate Program proposals.)	What is changing? Check all hoves that	annly	
associated with this course is CHM202 (Essentials of Organic Chemistry Laboratory). Does not apply toward a chemistry major or minor if student passes CHM 342. 3(3-0) F,S  Check if this is a non-substantive change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.  Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.  X_ College Council  (All substantive course changes numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)  (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)  (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)	□Course Deletion □Course Coo □ Credit Hours/Contact Hours  Reason for Proposed Change or Deletion The courses CHM200 (lecture and lab) and 20 course that is the associated lab (CHM202). Institutions where these courses were separa These materials have been sent to PEC as a co How Did You Determine the Need For T There have been a large number of transfer of performance of these courses. The Registrar problems as possible.  COMPLETE NEW CATALOG INFORMATIC CHM 201 Essentials of Organic Chemi	de     Course Num   Periodicity   Periodicity   Course Num   Course Nu	X Description  ered to have a single course which is lecture only (CHM201) and a single ith student registration and advising associated with transfer credits from insistent with the rest of the course numberings in the department, associated course changes.  th these courses. This will also allow for separation of grades in the gathese proposed changes in this fashion to alleviate as many registration.
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approval, College Council will forward appropriate number of copies to the next committee/council or directly to the Faculty Senate if no further committee approval is needed. The last level of committee/council will forward two originally signed copies to the Faculty Senate.)  (Considers all substantive course changes for Professional Education courses and Teaching Methods courses.)  (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)  (Considers all 600-900 level course changes.)	(please check all that apply and send to first counci	I/committee marked). If proposa	needs to go through more than one council/committee, forward one additional
Committee on General Education and Intercollegiate Programs  Methods courses.) (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)  Graduate Council  Methods courses.) (Considers all substantive course changes for General Education and Intercollegiate Program proposals.)		approval, College Council committee/council or dire The last level of committe	will forward appropriate number of copies to the next ectly to the Faculty Senate if no further committee approval is needed.
Graduate Council  Considers all 600-900 level course changes.)  4/10/13	Committee on General Education	Methods courses.) (Considers all substantive	
Signature Date 4/10/13			el course changes.)
Department Head	<del></del>		Date 4/10/13

# Missouri State University Curricular Proposal Course Change or Deletion



DepartmentCHM		Date
Check one: This is a change to _X	_	i.e. permanent) SECTION of a variable content course
Present Catalog Description (Cut and paste from web catalog or use most	recent description.)	Revised Catalog Description (Cut and paste description again, strikethrough all deletions, and insert and bold new information.)
CHM 200 Essentials of Organic Chemi	istry	
Prerequisite: "C-" grade or better in eithe 160 and CHM 161. Principles of organic biochemistry. Does not apply toward a cheminor if the student passes CHM 342. A is required in this course in order to take taken Pass/Not Pass. Lecture portion ider Cannot receive credit for both CHM 200 Supplemental course fee. 5(4-3) F,S	chemistry and nemistry major or grade of "C-" or better CHM 352. May not be ntical to CHM 201.	
		·
Talker is also main 2 Ob also 10 to		
What is changing? Check all boxes that ap X Course Deletion □Course Code		ımber 🗆 Title 🗆 Prerequisite
□Credit Hours/Contact Hours	□ Periodicity	•
	is Change or Deletion? edit problems associated wi	ith these courses. This will also allow for separation of grades in the g these proposed changes in this fashion to alleviate as many registratio
	Distribution for non-substanti	ve changes of 100- through 500-level courses: two originally-signed copies to aduate Council. Graduate Council will give two copies to Faculty Senate after
(please check all that apply and send to first council/	committee marked). If proposa	s of the Faculty. Forward <u>three</u> originally signed forms to <u>one</u> of the following al needs to go through more than one council/committee, forward one additionable or definitions of substantive/non-substantive changes.
X College Council	•	hanges numbered 100-599 must go through College Council first. After
	committee/council or di	rectly to the Faculty Senate if no further committee approval is needed. see/council will forward two originally signed copies to the Faculty
XProfessional Education Committee	•	e course changes for Professional Education courses and Teaching
Committee on General Education and Intercollegiate Programs		e course changes for General Education and Intercollegiate Program
Graduate Council	Considers all 600-900 le	vel course changes.) $(1/10/12$
Signature (400)	$\sim$	Date



## **Department of Mathematics**

To: CNAS College Council

From: William O. Bray

Subject: MTH 121

**Date:** August 26, 2013

MTH 121 has already been approved by the CNAS College Council. In revised form, it was accepted by CGEIP for the new General Education Structure. The revision required rewriting the course description for the catalog. This is the reason it is being sent to CC once again.

I am attaching the earlier course proposal for your convenience.



# Missouri State University CURRICULAR PROPOSAL NEW COURSE (or new REGULAR SECTION of an existing variable content course)

Department Mathematics	Date 01/03/13
Check one: _X_New COURSEsection of an existing variable topics	New REGULAR (i.e. permanent) SECTION of an existing variable content course. If a new regular course, to what existing course is it to be attached?
society and the impact of histor impact of historical events like t and the frailty of humankind on study of mathematics today. P	es on developing an appreciation of the impact of mathematics in the development of rical events on the development of mathematics. Students in this course explore the the geographical isolation of cultures, the Dark Ages, religious and societal intolerance the development of mathematical knowledge and the cultural attitudes toward the arallels will be drawn to events in today's world to determine how each individual can of knowledge. The level of mathematical and historical knowledge expected of
	eed the level of traditional high school courses.
General Education. This course Goals:  • General Goal (13): Stude • General Goal (14): Stude	meet the Focus on Cultural Competency portion of the Public Affairs requirement for is intended to meet Goal 13 and Goal 14 of the MSU General Education Learning ents will be able to recognize and consider multiple perspectives and cultures. Ents will be able to articulate their value systems, understand the ethical implication those values, and develop skills consistent with having a positive impact on
individuals, groups, or co RELATIONSHIP TO OTHER DEPARTME This course could promote colla	ommunities.
offered course.	inseror the rubble Arians goal, it should have no negative impact on any currently
300a/05) and forward three typed, or	RT VI, SEC 3B(1-4) of Bylaws of the Faculty. Attach New Course Resource Information form (FS riginally signed forms to one of the following (please check all that apply and send to first burse needs to go through more than one council/committee forward one additional form for each
X College Council	(All new course proposals numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/ council or directly to the Faculty Senate if no further committee approval is needed.)
Professional Education Committee	(Considers all new courses affecting BS and MS in Education and Educational Specialist degrees)
X Committee on General Education and Intercollegiate Programs	(Considers all general education and multi-college new course proposals)
Graduate Council	(Considers all 600-, 700-, and 800-level new courses)
If the course needs to go through more than	one council/committee, forward one additional form for each additional council/committee marked.
iignature	Date
iignature Department Head	· · · · · · · · · · · · · · · · · · ·

(Routing on Reverse Side)

FS New Course - 9/10/2010

# Missouri State University CURRICULAR PROPOSAL



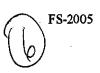
# NEW COURSE (or new REGULAR SECTION of an existing variable content course)

Department <u>Mathematics</u>	Date 08/26/13
Check one: <u>X</u> New COURSEN ection of an existing variable topics or	lew REGULAR (i.e. permanent) SECTION of an existing variable content course. If a new regular ourse, to what existing course is it to be attached?
oasic human nature on the develo o determine how each individu	course explore the impact of major historical events, the mores of various societies, an opment of mathematical knowledge. Parallels will be drawn to events in today's world can foster the global advancement of knowledge. The level of mathematical and fincoming students does not exceed the level of traditional high school courses.
	meet the Focus on Cultural Competency portion of the Public Affairs requirement for is intended to meet Goal 13 and Goal 14 of the MSU General Education Learnin
<ul><li>General Goal (13): Stude</li><li>General Goal (14): Stude</li></ul>	ents will be able to recognize and consider multiple perspectives and cultures. ents will be able to articulate their value systems, understand the ethical implication on those values, and develop skills consistent with having a positive impact of mounties.
	NTS  Iaboration between the mathematics department and others, such as history and ourse for the Public Affairs goal, it should have no negative impact on any currently
300a/05) and forward three typed, ori	T VI, SEC 3B(1-4) of Bylaws of the Faculty. Attach New Course Resource Information form (FS iginally signed forms to one of the following (please check all that apply and send to first urse needs to go through more than one council/committee forward one additional form for each .
X College Council	(All new course proposals numbered 100-599 must go through College Council first. After approval, College Council wiferward appropriate number of copies to the next committee/ council or directly to the Faculty Senate if no further committee approval is needed.)
Professional Education Committee	(Considers all new courses affecting BS and MS in Education and Educational Specialist degrees)
X Committee on General Education and Intercollegiate Programs	(Considers all general education and multi-college new course proposals)
Graduate Council	(Considers all 600-, 700-, and 800-level new courses)
*If the course needs to go through more than  Signature Department Head	Date Date

(Routing on Reverse Side)

FS New Course - 9/10/2010

### NEW COURSE RESOURCE INFORMATION



Date 11/29/12

Course Number and	Title_	MTH 121:	<u>Multicultural</u>	Views of History	and Mathematics

Anticipated Average Enrollment\_60-100 students each spring semester\_

Maximum Enrollment Limit 44

Faculty Load Assignment 3 Equated Hours

1 Is another course being deleted? If so, give course number and title.

No course is being deleted.

2 What will this course require in the way of:

Additional library holdings? Several titles may be requested to increase the holdings in history of mathematics for the layman.

Additional computer resources? None anticipated. Access to web-conferencing tool like Adobe Connect may be requested.

Additional or remodeled facilities? None.

Additional equipment or supplies? None.

Additional travel funds? None.

Additional faculty-general vs specialized? None.

Other additional expenses? None.

3 If additional faculty are not required, how will faculty be made available to teach this course?

This course will be offered in the spring semester, when the numbers are lower in gen ed courses.

List names of current faculty qualified to teach this course: All Mathematics Department faculty - ranked and instructors

4 What is the anticipated source of students for this course? (If from within the department, will students be taking this course in addition to or in place of other courses? If from outside the department, which courses in other departments would most likely be affected?)

This would be one option for students to meet the Gen Ed requirement for Public Affairs.

5 Other comments:



## MTH 121: Multicultural Views of History and Mathematics

## **Proposed Syllabus**

### Mrs. Patti Blanton

Office: Cheek 55M (northeast corner of the mezzanine)

Office Hours: as below or by appointment

120425. 45515.	,,
MWF	
M	
TR	

Office Phone: 417-836-5317

E-mail: pblanton@missouristate.edu

Type of Course: General Education - Breadth of Knowledge: Public Affairs Focus on Cultural

Competence

Prerequisite: None

**Description:** Students in this course explore the impact of major historical events, the mores of various societies, and basic human nature on the development of mathematical knowledge. Parallels will be drawn to events in today's world to determine how each individual can foster the global advancement of knowledge. The level of mathematical and historical knowledge expected of incoming students does not exceed the level of traditional high school courses.

Philosophy: In <u>The Story of Mathematics</u>, Richard Mankiewicz claims that "the evolution of science, philosophy and mathematics, all related, is far more important to the history of humanity than a parade of rulers and a procession of wars." Many people today have no comprehension of what this evolutionary process has entailed. To help our students experience mathematics, and human knowledge in general, as an ongoing endeavor of humankind, this course is designed to explore the evolution of mathematical knowledge within the context of the culture and ethics of the times. Mathematical history can show us how this development has been affected by geography, wars, religion, society's views on equity, and the perseverance of the human spirit and how our ethics and values of today can inhibit or encourage continued development of human knowledge. In our quest to reach this understanding, students will be guided and encouraged to seek out information from reliable sources and topical experts.

**Purpose of the Course:** Students can take this course to meet the Focus on Cultural Competency portion of the Public Affairs requirement for General Education. This course is intended to meet Goal 13 and Goal 14 of the MSU General Education Learning Goals:

- General Goal (13): Students will be able to recognize and consider multiple perspectives and cultures.
- General Goal (14): Students will be able to articulate their value systems, understand
  the ethical implication of their actions based on those values, and develop skills
  consistent with having a positive impact on individuals, groups, or communities.

**Required Textbook:** Mankiewicz, R., (2000). The Story of Mathematics, Princeton University Press.

Additional Course Materials: Along with the required textbook, the instructor and students will use written and on-line sources to explore particular topics in more depth and to enhance the cultural experience with visual and auditory experiences.

**Learning Objectives and Assessment:** This course meets the General Education Learning Goals as indicated below. These goals will be assessed through quizzes, exams, presentations and research papers. Data will be collected by instructors following departmental guidelines developed by the curriculum team for this course.

MSU Learning Goal	MTH 121 Learning Objectives
Cultural Competence (Goal 13) #2: Understand, critically examine, and articulate key similarities and differences between their own cultural practices and perspectives and those of other cultures, past and present.	Students will explore various events in the history of mathematics, focusing on the culture of the times and how we can learn from those situations to support the advancement of knowledge in our times.
Cultural Competence (Goal 13) #3: Identify the importance and best practices of developing skills for working/interacting with others.	Students will explore the competitive side of academic research as well as the occasional collaborations: Newton versus Leibniz; Tartaglia versus Cardano; Kepler and Brahe partnership; and, Einstein looks to the mathematicians of the day for assistance and finds what he needs within the new field of Non-Euclidean Geometry. Students will then consider how they can best support the advancement of human knowledge through their own actions and how society can best collectively support such advancement.



Cultural Competence (Goal 13) #4: Analyze the role that different languages, cultures, institutions, and beliefs have in shaping individual and collective behavior.  Ethical Leadership (Goal 14) #1: Engage in self-evaluation of their personal values and the degree to which their ethical values and behaviors are congruent.	Students will re-create Eratosthenes' approximation of the measure of the Earth in about 230 BCE and trace the development of knowledge related to our place in the universe. Attention will be given to the impact of religion on this topic and how humankind arrived at the point where the common person believed the earth to be flat. Then, students apply this to today's world – how do our current beliefs, cultures and institutions shape the development of human knowledge?  As students have the opportunity to see the impact of cultural mores and human actions on the development of mathematics over its history, they will be asked to evaluate their own ethical values
congruent.  Ethical Leadership (Goal 14)	and anticipate the effect their values would have on the development of human knowledge.  Cultural bias, gender bias, and religious
#3: Identify areas of difficulty in responding to situations demanding ethical inquiry.	intolerance have all had a part in the history of mathematics. Students will explore the impact of these throughout history and the level to which they appear to still be affecting the development of human knowledge today. How can we respond to these same situations today?
Ethical Leadership (Goal 14) #4: Analyze complex ethical dilemmas facing the world.	Students will explore the adage:  "knowledge is power" and determine its accuracy and relevance in today's world.  Emphasis will be made on how students can help their world to best support the advancement of human knowledge.

**Pedagogical and Topical Aspects of the Course:** This course should be presented in a variety of contexts. It can be a blended course with students accessing factual information outside of class, then discussing and analyzing contexts within class. Virtual tours can be made to explore locations and artifacts. Guest experts from various departments across campus can present on specific topics.



### Topics can include:

- contributions of major figures, such as: ancient Greek mathematicians, Archimedes, Gauss, and Newton
- 2. contents of important ancient texts such as the Rhind Papyrus or the Archimedes Codex
- 3. the fragility of an axiomatic system or why we have to prove everything
- 4. development of the Hindu-Arabic numeral system
- 5. mathematics related to wars
- 6. the impact of religion on the development of mathematical knowledge
- 7. mathematics developed to measure the earth and stars
- 8. the effects of gender bias throughout the development of mathematical knowledge
- 9. the effect of laws against homosexuality on the life of a mathematician who saved lives, and possibly countries in World War II
- 10. famous theorems and problems throughout history, such as: Eratosthenes' approximation of the circumference of the earth, Euclid's Fifth Postulate, the Pythagorean Theorem, Fermat's Last Theorem.

Attendance: Due to the nature of this course, attendance to each class is critical. Students should make every effort to be in attendance at each session. In the event that you must miss class, you should contact the instructor for any items that were distributed during class. You should also contact a classmate to get any missed notes. In the event that the absence occurred on the day of an exam or a presentation that you are making, see below.

**Homework and Quizzes:** Homework may be given during any lesson. Unless stated otherwise, it will be due at the <u>beginning of the class period</u> immediately following assignment. A student will be granted two late assignments throughout the entire course, but you must request a date be extended by e-mailing the instructor.

Daily quizzes will be given at the discretion of the instructor. There is no make-up available for any of these quizzes.

Exams and Presentations: There will be a midterm and a final exam, both of which are cumulative in nature. ATTENDANCE IS MANDATORY ON THE DAY OF AN EXAM OR PRESENTATION!! PLAN BACK-UP TRANSPORTATION/CHILDCARE/ALARMS!!!! If a make-up exam option is granted, that exam may be more rigorous than the original exam.



## Requirements to qualify to take a make-up exam or make a late presentation:

- The instructor must be notified of the absence by e-mail or by office phone PRIOR TO THE START OF THE EXAM! The notification must be made as early as possible in the event of a schedule conflict that cannot be resolved. If notification prior to the exam was not possible, proper notification verifying that impossibility must be provided.
- 2. Documentation of absence **MUST** be provided! That documentation may include a doctor's notification indicating that the student was too ill to attend class that day; a note from a coach or faculty sponsor indicating a required school activity on that day; or a police report showing date and time of an occurrence that precludes attendance to class.
- 3. The **STUDENT** must initiate a request for a make-up exam or a time for a late presentation and either of these must be completed within one week of the missed in-class activity. Situations requiring extended time must be discussed with the instructor.

**Grading:** The course grade will be maintained in Blackboard and it is the student's right and responsibility to verify the accuracy of the entries. The grade is weighted according to the following scale:

Category	Percent of Course Grade
Homework and Quizzes	15%
Presentation/Project	20%
Research Paper	15%
Midterm Exam	20%
Comprehensive Final	30%
Total	100%



The course grade will be round to the nearest whole number and following grading scheme will be used:

Excellent	Α	93 to 100%
	A-	90 to 92%
Good	B+	87 to 89%
	В	83 to 86%
	B-	80 to 82%
Average	C+	77 to 79%
	С	73 to 76%
	C-	70 to 72%
Inadequate	D+	67 to 69%
	D	60 to 66%
Unacceptable	F	Below 60%

Dates for Dropping: \_\_\_\_\_\_ is the deadline to drop or withdraw from a full semester class.

The action of dropping the class is the responsibility of the student!! If you stop attending this class but do not follow proper procedure for dropping the class, you will receive a failing grade and will continue all financial obligations.

Academic Integrity: Missouri State University is a community of scholars committed to developing educated persons who accept the responsibility to practice personal and academic integrity. You are responsible for knowing and following the university's *Student Academic Integrity Policies and Procedures*, available at <a href="https://www.missouristate.edu/policy/academicintegritystudents.htm">www.missouristate.edu/policy/academicintegritystudents.htm</a>. You are also responsible for understanding and following any additional academic integrity policies specific to this class (as outlined below). Any student participating in any form of academic dishonesty will be subject to sanctions as described in this policy. If you are accused of violating this policy and are in the appeals process, you should continue participating in the class.

A current university student ID or valid photo driver's license will be required for the first exam. For purposes of test security, any student leaving the room during an exam will not be allowed to re-enter or to continue with the exam. On the day of the exam, if a student wears a hat, that hat must not have a bill that projects in front of the student's face. During any quiz or test, if a cell phone or a graphing calculator with CAS capability is present, when not specifically stated as allowed, the student will receive a zero on that assessment.



**Nondiscrimination Policy:** Missouri State University is an equal opportunity/affirmative action institution, and maintains a grievance procedure available to any person who believes he or she has been discriminated against. At all times, it is your right to address inquiries or concerns about possible discrimination to the Office for Equity and Diversity, Park Central Office Building, 117 Park Central Square, Suite 111, (417) 836-4252. Other types of concerns (i.e., concerns of an academic nature) should be discussed directly with your instructor and can also be brought to the attention of your instructor's Department Head. Please visit the OED website at <a href="https://www.missouristate.edu/equity/">www.missouristate.edu/equity/</a>.

Disability Accommodation Policy: To request academic accommodations for a disability, contact the Director of the <u>Disability Resource Center</u>, Plaster Student Union, Suite 405, (417) 836-4192 or (417) 836-6792 (TTY), <u>www.missouristate.edu/disability</u>. Students are required to provide documentation of disability to the Disability Resource Center prior to receiving accommodations. The Disability Resource Center refers some types of accommodation requests to the <u>Learning Diagnostic Clinic</u>, which also provides diagnostic testing for learning and psychological disabilities. For information about testing, contact the Director of the <u>Learning Diagnostic Clinic</u>, (417) 836-4787, <a href="http://psychology.missouristate.edu/ldc">http://psychology.missouristate.edu/ldc</a>.

**Electronic Communication Devices:** In respect of the learning environment, all pagers, cell phones and other electronic communication devices (not for assistance of a disabled student) must be turned off during class. *Entertainment media and all electronic communication devices are not allowed during instruction or testing times.* No video or audio recording of the lectures or conferences can be made without the prior knowledge of the instructor. In the case that a recording is needed, that record is solely for the use of that student and is not to be shared in any electronic media.

**Emergency Response Information:** Students who require assistance during an emergency evacuation must discuss their needs with their professors and Disability Services. If you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible.

For additional information, students should contact the Office of Disability Services at 836-4192 (PSU 405), or Larry Combs, Interim Assistant Director of Public Safety and Transportation at 836-6576. For further information on Missouri State University's Emergency Response Plan, please refer to the following website: <a href="http://www.missouristate.edu/safetran/erp.htm">http://www.missouristate.edu/safetran/erp.htm</a>.