

0769



No need to go to mnsu. Change does not take program over 128 hours

Minnesota State University, Mankato

HOLD and CLEAR buttons only compatible with Acrobat V. 4 and 5

### Curriculum Proposal

Please type or select the requested information. Print completed forms, add appropriate paper attachments, and route through MSU's curricular process for recommendations and decisions.

		(Check all that apply):		Proposal #	118
College:	Science, Engineering and Technology	<input type="checkbox"/>	Undergraduate	Effective Date of Change:	
Department:	Chemistry and Geology	<input type="checkbox"/>	Graduate	Academic Year	06-07
Program:	CHEMISTRY BA	CIP #		(For Office Use Only)	
		400501.00		Course Designator and Number	Number of Credits
Type of Change	PROGRAM PROPOSALS				
Proposed:	Change in Requirements-Course(s) Added				
Title Current:					
Title Proposed:					
24-Char. Abbrev:					(if applicable)

Include a course or program description for the Bulletin (30-40 words maximum for courses, 100 for programs):  
No Change

Rationale or Justification for change:  
See Attached

\*\*\*For General Education or Cultural Diversity Courses Only\*\*\*

<b>General Education Course:</b>		<b>Cultural Diversity Course:</b>
GE Category #	GE Category Name (Maximum of 3 Categories)	(Please check one.)
N/A		<input type="checkbox"/> Core (At least 75% devoted to topics of race, gender, sexual orientation, age, class, and disabilities as they occur in United States Society.)
N/A		<input type="checkbox"/> Related (At least 25% devoted to the above topics or to a global perspective on topics related to African American, Asian, Hispanic, and Native American inhabitants of the United States.)
N/A		

For Writing Intensive Courses, attach a description of the kind and quantity of writing.  
 For Upper Division Courses, include a description of the respects in which it is broad and general rather than narrow and specific, and so suitable as GE.

Attach paper copies of the following:

- Syllabus or course outline.
- Course's student learning outcomes associated with each GE competency or CD designation.
- List of strategies to be used to assess students' achievement of each GE competency or CD designation.

\*\*\*For New Courses\*\*\*

(Check all that apply):	Instructional Type:	Lecture	Course will be offered:
<input type="checkbox"/> Course is an elective.	Grading Format:	<input type="checkbox"/> Grade <input type="checkbox"/> P/N	<input type="checkbox"/> Fall Semester
<input type="checkbox"/> Course is required for program			<input type="checkbox"/> Spring Semester
<input type="checkbox"/> Pre- or Co-requisites:			<input type="checkbox"/> Summer Session
<input type="checkbox"/> Other courses are being changed or eliminated. (Explain.)			

Course content or title is similar to courses in other departments. (Attach copy of letter of agreement with other program(s) contacted. Indicate the nature of the discussions and/or resolution of differences or potential conflicts.)

Attach paper copies of the following:

- Syllabus or course outline.
- Course's student learning outcomes.
- A list of resources required to offer and support this course.
- A description of how teaching this course will affect department staffing.
- If 400/500 level course, an explanation of added expectations of graduate students.



Minnesota State University, Mankato  
Curriculum Proposal

\*\*\*Signature Page\*\*\*

**Department**

Recommended (Category/ies \_\_\_\_\_)  
 Not Recommended (Category/ies \_\_\_\_\_)

Brian Lynd 10-19-06  
Department Chair Date

Comments:

**College Curriculum Committee**

Recommended (Category/ies \_\_\_\_\_)  
 Not Recommended (Category/ies \_\_\_\_\_)

Karen C. Chon 11/2/06  
Committee Chair Date

Comments:

**College Dean**

Recommended (Category/ies \_\_\_\_\_)  
 Not Recommended (Category/ies \_\_\_\_\_)

John A. [Signature] 11/4/06  
Dean Date

Comments:

**General Education Subcommittee**

Recommended (Category/ies \_\_\_\_\_)  
 Not Recommended (Category/ies \_\_\_\_\_)

\_\_\_\_\_  
General Education Subcommittee Chair Date

Comments:

**Undergraduate Curriculum and Academic Policy Committee**

Recommended (Category/ies \_\_\_\_\_)  
 Not Recommended (Category/ies \_\_\_\_\_)

[Signature] 3/20/07  
UCAP Faculty Chair Date

Comments:

**Faculty Association Graduate Committee**

Recommended  
 Not Recommended

\_\_\_\_\_  
Faculty Association Graduate Chair Date

Comments:

**Graduate Dean**

Recommended  
 Not Recommended

\_\_\_\_\_  
Graduate Dean Date

Comments:

**Academic Affairs Council**

Recommended (Category/ies \_\_\_\_\_)  
 Not Recommended (Category/ies \_\_\_\_\_)

[Signature] 3/28/07  
Assistant Vice President Date

Comments:

**Senior Vice President and Vice President for Academic Affairs**

Approved (Category/ies \_\_\_\_\_)  
 Not Approved (Category/ies \_\_\_\_\_)

[Signature] 3.28.07  
Sr. Vice President / Vice Pres. Academic Affairs Date

Comments:

Chemistry BA Major Revision Proposal  
10/18/06

**Rationale or Justification for change:**

Through this revision, our department is striving to bolster the content coverage of the BA Major, and thus foster excellence in undergraduate education as per the University's strategic priorities. The primary focus of this revision is the inclusion of Physical Chemistry I, a course which provides a detailed treatment of thermodynamics and chemical kinetics. These two topics are the foundation of any thorough understanding of physiochemical phenomena. The inclusion of Physical Chemistry I imposes the revisions to the Required General Education and Support Course requirements. The changes to the Required Electives for Major are to insure that the students take at least one 300/400 elective course with a laboratory component.

**a. Student Learning Outcomes:**

Please see attached Assessment Plan for Chemistry BA Major, first column.

**b. Minutes from Department Meeting:**

Please see attached

**c. Program Assessment Plan:**

Please see attached

**d. List of Current and Proposed program requirements:**

Please see attached

**e. Resources required to offer and support program:**

No new resources required, program already exists.

**f. Effect on Department Staffing:**

No new staffing required.

**g. Additional library holdings required:**

None.

**Please include rationale for any proposed changes to number of program credits:**

Through this revision, our department is striving to bring the Chemistry BA major in line with similarly accredited institutions from around the region, especially in regard to total credit hours and content coverage.

# Chemistry BA Major Revision Proposal

10/18/06

Current:

**Required General Education (3-4 credits):**

MATH 113 Trigonometry (3) or  
MATH 115 Precalculus (4) or  
MATH 121 Calculus I (4)

**Required Support Courses (4-5 credits):**

PHYS 211 Principles of Physics I (4) or  
PHYS 221 General Physics I (5)

**Required for Major (Core, 28 credits):**

CHEM 201 General Chemistry I (5)  
CHEM 202 General Chemistry II (5)  
CHEM 305 Analytical Chemistry (4)  
CHEM 320 Organic Chemistry I w/ lab (5)  
CHEM 321 Organic Chemistry II (3)  
CHEM 331 Organic Chemistry II Lab (1)  
CHEM 381 Introduction to Research (2)  
CHEM 412 Intermediate Inorganic (2)  
CHEM 495 Senior Seminar (1)

**Required Electives for Major (CHEM, 6 credits):**

Choose a minimum of 6 credits from chemistry or biochemistry courses except CHEM 479 and CHEM 482:

CHEM xxx 300/400 Elective  
CHEM xxx 300/400 Elective

**Required for BA Degree ONLY:**

Language (8)

Total Credits: 49-51

New Proposal:

**Required General Education (8-9 credits):**

MATH 121 Calculus I (4)  
PHYS 211 Principles of Physics I (4) or  
PHYS 221 General Physics I (5) or

**Required Support Courses (4-5 credits):**

PHYS 212 Principles of Physics II (4) or  
PHYS 222 General Physics II (5)

**Required for Major (Core, 31 credits):**

CHEM 201 General Chemistry I (5)  
CHEM 202 General Chemistry II (5)  
CHEM 305 Analytical Chemistry (4)  
CHEM 320 Organic Chemistry I w/ lab (5)  
CHEM 321 Organic Chemistry II (3)  
CHEM 331 Organic Chemistry II Lab (1)  
CHEM 381 Introduction to Research (2)  
CHEM 412 Intermediate Inorganic (2)  
CHEM 440 Physical Chemistry I (3)  
CHEM 495 Senior Seminar (1)

**Required Electives for Major (CHEM, 6 credits):**

Choose a minimum of 6 credits of chemistry or biochemistry courses **EXCEPT** CHEM 479 and CHEM 482. These electives must include at least one of the following courses:

CHEM 360 CHEM 407 CHEM 415  
CHEM 423 CHEM 424 CHEM 437  
CHEM 450 CHEM 451 CHEM 465  
CHEM 466 CHEM 474 CHEM 475

CHEM xxx 300/400 Elective  
CHEM xxx 300/400 Elective

**Required for BA Degree ONLY:**

Language (8)

Total Credits: 57 - 59

The added 8 credits proposed in this Major will be drawn out of the pool of free elective credits open to the student:

Credits to Graduate – (Credits for Major + Gen. Ed. Credits not in major) = Free Electives

$$128 - ( [57-59] + 32 ) = [37-39] \text{ Free Electives}$$

**Dept of Chemistry and Geology  
Assessment Plan For Chemistry BA**

Student Learning Outcomes (performance, knowledge, attitudes)	Related Univ. Goals	Related College Goals	Method(s) of Assessment (What is the assessment?)	Who Assessed (Students from what courses - population)	When Assessed (dates)	Standard of Mastery/ Criterion of Achievement	What is Hoped to Be Learned?
1. Students will demonstrate their knowledge of the basic principles of chemistry (kinetics, thermodynamics, quantum mechanics and equilibria) and apply these to chemically relevant problems.	MSUM 2	CSET 1, 2, 3, 4, 5, 6, 14, 16	in class problems homework problems examinations laboratory experiments and reports use of ACS generalized exams	<u>kinetics</u> : students enrolled in chem 202, 320, 321, 412, 440 <u>thermo</u> : students enrolled in chem 201, 202, 412, 440 <u>quantum</u> : students enrolled in chem 201. <u>equilibria</u> : students enrolled in chem 201, 202, 305, 412.	<u>kinetics</u> 07-08 09-10  <u>thermo</u> 06-07 08-09  <u>quantum</u> 07-08 09-10  <u>equilib</u> 06-07 08-09	mastery standards are based on course level. 2xx level: ave score on ACS standardized gen chemistry exam is statistically same as national ave. 3xx -4xx level: score on homework probs and exams average 70%, lab experiments and reports average 75%	a. if students are able to use their knowledge from prerequisite courses to build on in upper division courses. b. if our students can apply fundamentals to different situations. c. if students are able to identify the common themes in the various courses. d. how well our students retain and use their knowledge compared to other programs.
2. Students will demonstrate their understanding of the chemist's use of numbers by applying their knowledge to make quantifiable comparisons (stoichiometry), to report data and to determine uncertainty and error.	MSUM 2	CSET 1, 2, 3, 6, 14, 16	in class problems homework problems examinations laboratory experiments and reports use of ACS generalized exams	students enrolled in chem 201, 202, 305, 320, 321, 331.	every other year 04-05 06-07	mastery standards are based on course level. 2xx level: ave score on ACS standardized gen chemistry exam is statistically same as national ave. 3xx level: score on homework probs and exams average 70%, lab experiments and reports average 75%, ave score on ACS standardized organic exam is statistically same as national ave.	a. if students are able to use their knowledge from prerequisite courses to build on in upper division courses. b. if our students are able to quantify basic relationships in our courses and laboratories. c. if our students understand the importance of data collection, the proper recording of and reporting of data.

Student Learning Outcomes (performance, knowledge, attitudes)	Related Univ. Goals	Related College Goals	Method(s) of Assessment (What is the assessment?)	Who Assessed (Students from what courses - population)	When Assessed (dates)	Standard of Mastery/ Criterion of Achievement	What is Hoped to Be Learned?
3. Students will demonstrate their understanding of descriptive chemistry (physical properties, bonding, reactivity patterns, redox, and characterization) by applying these ideas to relevant problems.	MSUM 2	CSET 1, 2, 3, 4, 5, 6, 14, 16	in class problems homework problems examinations laboratory experiments and reports use of ACS generalized exams	students enrolled in chem 201, 202, 320, 321, 331, 412, 495, 410	every other year 05-06 07-08	mastery standards are based on course level. 2xx level: score on ACS standardized general chemistry exam is statistically same as national ave. 3xx -4xx level: score on homework probs and examinations average 70%, lab experiments and reports average 75%, score on ACS standardized organic exam is statistically same as national ave.	a. if students are able to use their knowledge from prerequisite courses to build on in upper division courses. b. if students are able to identify the common themes in the various courses. c. how well our students retain and use their knowledge compared to other programs.
4. Students will demonstrate their communication skills by reading scientific works and utilizing appropriate terminology in effective written, oral and pictorial presentations.	MSUM 1, 2, 6	CSET 1, 2, 3, 4, 5, 6, 9, 14, 16	in class discussions examinations homework problems laboratory reports writing projects posters oral presentations	students enrolled in chem 201, 202, 305, 320, 321, 331, 381, 495, 410	every third year 06-07	mastery standards are based on course level. 2xx level: scores on writing assignments ave 70 % 3xx level: scores on written lab reports ave 75 % scores on writing assignments ave 70 % 381: grant proposals average 75 % on rubric 4xx level: scores on written lab reports ave 75 % scores on writing assignments ave 70 % 495: all students present oral and poster presentations with a passing grade.	a. if our students are able to communicate effectively as chemists. b. if spreading writing out among various courses is effective. c. how well our students can use these skills after graduation.

Student Learning Outcomes (performance, knowledge, attitudes)	Related Univ. Goals	Related College Goals	Method(s) of Assessment (What is the assessment?)	Who Assessed (Students from what courses - population)	When Assessed (dates)	Standard of Mastery/ Criterion of Achievement	What is Hoped to Be Learned?
5. Students will demonstrate their laboratory skills by properly conducting various "wet" laboratory procedures, instrumental techniques and exhibiting a professional laboratory presence.	MSUM 1, 2, 5	CSET 1, 2, 3, 5, 6, 14, 16	laboratory reports team laboratory projects	students enrolled in chem 201, 202, 305, 320, 331.	every other year 05-06 07-08	mastery standards are based on course level. 2xx level: scores on lab reports ave 80 % 3xx level: scores on written lab reports rubrics for technique ave 80 %, 4xx level: scores on written lab reports rubrics for technique ave 80 %.	a. if we incorporate enough instrument use throughout the program. b. how well our students can use these skills after graduation.
6. Students will demonstrate an understanding of the use of technology in the chemical fields through appropriate use of databases, search engines, modeling/computational software, spreadsheet software, and computer interfaced instrumentation.	MSUM 2, 5, 6	CSET 1, 2, 3, 4, 5, 6, 9, 14, 16	writing projects poster presentations oral presentations laboratory reports team laboratory projects	students enrolled in chem 201, 202, 305, 320, 331, 381, 495, 440	every other year 06-07 08-09	mastery standards are based on course level. 2xx level: scores on spreadsheet projects ave 75 % 3xx level: scores on lab report rubrics for data analysis ave 80 %, 4xx level: scores on lab report rubrics for instrument driven exps ave 75 %.	a. if our students are able to use technology effectively. b. if students are able to apply information learned by laboratory technology to the basic principles. c. how well our students can use these skills after graduation.

\*What will department or program do with results of information? This information will be used to review and determine whether the department is meeting accreditation needs, student needs and professional opportunity needs. If necessary, we will make adjustments to teaching methods, emphases or curriculum to maintain our quality.

Department of Chemistry and Geology  
Department Meeting Minutes  
October 11, 2006

Present: Boyd, Groh, Hadley, Hoppie, Losh, Lusch, Pribyl, Quirk-Dorr, Rambo, Rife, Salerno, Swart, Thoenke

Meeting called to order at 8:04 a.m.

Groh requested faculty to check the fall schedule for errors.

Veteran's Day: Marg from Biology has drafted a letter to VP Olson expressing concerns about the impact of a holiday that falls on different days of the week each year on lab scheduling. It was suggested that the Chemistry department do so also. Salerno mentioned a possibility of offices closed, but classes in session.

Groh thanked faculty who attended the Ford Lectureship Tuesday evening.

Major Fair: will take place Oct. 25 10:30-1:30 for students who have not declared a major.

Curriculum: Swart reported.

BA major: There is a concern that a student could get through a BA major without taking a 400 level lab. A stop-gap measure would be to include a requirement that they must have 2 credits at the 400 level with a laboratory component. Discussion followed.

Swart moved, Hadley seconded to approve changing 412 to 312. Motion carried.

Rife moved, Swart seconded, to approve the proposed change to the BA major, listing the courses that would meet the requirements. They are: 360, 407, 415, 423, 424, 437, 450, 451, 465, 466, 474, and 475.

BA minor: There was a concern that transfer students could declare a MSU chemistry minor without having any chemistry at MSU. Pribyl moved, Hadley seconded, to approve the proposed revision. Discussion followed. Amendment by Thoenke: elective credits must be taken at MSU. Motion carried.

GPA Policy will be discussed at next week's department meeting.

Pribyl mentioned that the discussion regarding engineering general chemistry is ongoing.

Meeting adjourned 8:57 a.m.

Respectfully submitted

Patricia Rambo

College of Science, Engineering and Technology  
Curriculum Committee Meeting Minutes  
WA 303, Tuesday, October 31, 2006

Present: Harry Petersen (AMET), Beth Lavoie (Biology), Jim Rife (Chemistry/Geology), Gregg Asher (CIS), Julio Mandojana (ECET), Brian Wasserman (IDCM), Dan Singer (Math/Statistics), Karen Chou (ME/CivE), Youwen Xu (Physics/Astronomy), Mahbubur Syed (UCAP Representative for CSET).

Guests: David Haglin (CIS), Bill Hudson (ECET)

1. The meeting was called to order at 8:06 AM.
2. The minutes of 10-24-2006 meeting was approved as written.
3. Karen Chou thanked Jim Rife and Gregg Asher for chairing the 10-24-06 meeting.
4. David Haglin and Bill Hudson attended in order to clarify any confusion in the proposal CIS and ECET submitted. Bill Hudson also brought some of the previously required documentation to the committee for reviewing.
5. The committee reviewed 165 proposals. 164 proposals were approved contingent upon the required materials submitted in proper format. Please see attached spreadsheet for details. Proposal 07168 was tabled for insufficient of information.
3. Jim Rife left at 9 AM, and Beth Lavoie left at 9:20 AM, due to prior commitment.
4. Several members of the committee suggested UCAP to allow "Class action" for simple proposals such as change of designators or change of prerequisites. It would save the related parties a lot of work.
5. Two proposals were delivered to us yesterday (10-30-06) afternoon at 4 PM. Many committee members did not have a chance to review the proposal. They are general education proposals. We may vote on these proposals using email if possible.

Meeting adjourned at 9:50 am.

Respectfully submitted,

Youwen Xu, Secretary



proposal no 118  
(letter from physics)

**Mahbub Syed**

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**From:** "Youwen Xu" <youwen.xu@mnsu.edu>  
**To:** "Groh, Brian L" <brian.groh@mnsu.edu>  
**Cc:** "Mahbub Syed" <mahbubur.syed@mnsu.edu>  
**Sent:** Monday, February 12, 2007 3:02 PM  
**Subject:** Re: FW: Curriculum proposal

Dear Dr. Groh,

The change in the requirement by the Chemistry Department on their BA degree would not have significant effect on the enrollment of Physics 211 and 212.

Please let me know if you need more information.

Best regards.

Youwen Xu, Ph.D.  
Acting Chair  
Department of Physics and Astronomy  
Minnesota State University, Mankato

Groh, Brian L wrote:

- > Dear Youwen,
- > Because most of our BA majors are in pre-professional programs I would
- > expect no more than 2-3 additional students each year.
- > Brian
- >
- > -----
- > \*From:\* Youwen Xu [mailto:youwen.xu@mnsu.edu]
- > \*Sent:\* Fri 2/9/2007 4:39 PM
- > \*To:\* Groh, Brian L
- > \*Subject:\* Re: FW: Curriculum proposal
- >
- > Dear Brian,
- >
- > Could you tell me how many students do you anticipate will be taking
- > Phys 211-212 because of this change? I mean students who are not taking
- > Phys 211-212 at present time.
- >
- > Youwen
- >
- > Groh, Brian L wrote:
- >
- >> Dear Youwen,
- >>

>> We recently added the requirement of P-Chem to our chem. BA degree.  
>> It requires Physics 211 and 212. I need your departments approval or  
>> endorsement (please see the note below). Would you be willing to  
>> provide this to us by the Tuesday deadline noted below? I would be  
>> happy to answer any questions.

>>  
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>>

>> Kind regards,

>>

>> Brian

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>>  
>>

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>> Dr. Brian Groh, Chairperson

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>> Department of Chemistry and Geology

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>> Minnesota State University, Mankato

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>> 242 N Trafton Science Center

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>> Mankato, MN 56001

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>> Phone 507-389-5921

>>

>> Fax 507-389-5625

>>

>> [www.intech.mnsu.edu/groh](http://www.intech.mnsu.edu/groh) <<http://www.intech.mnsu.edu/groh>>

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>> /Give me winter, give me dogs and you can keep the rest! /

>>

>> / - Danish Explorer Knud Rasmussen/

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>> \*From:\* Mahbub Syed [mailto:mahbubur.syed@mnsu.edu]

>> \*Sent:\* Wednesday, February 07, 2007 3:44 PM

>> \*To:\* Groh, Brian L

>> \*Subject:\* Curriculum proposal

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>>

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>> I am CSET representative to UCAP.

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>>  
>>  
>> You had a program proposal sent to UCAP for your Chemistry BA program.  
>> You added two physics courses (PHY 211 and 212) to your new program.  
>> UCAP requires a consent letter from Physics department.

>>  
>>  
>>  
>> You can email me the consent letter for presenting to UCAP. Next UCAP  
>> meeting is on Tuesday (Feb 13th). I would appreciate if I could get  
>> the letter before Tuesday.

>>  
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>>  
>> Please let me know if you will have any queries.

>>  
>>  
>>  
>> Best regards.

>>  
>>  
>>  
>> Mahbub Syed

>>  

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>> Dr. Mahbubur Rahman Syed  
>> Professor, Department of Computer and Information Sciences  
>> 273 Wissink Hall  
>> Minnesota State University, Mankato  
>> MN 56001, USA  
>>  
>> Phone: (507) 389 3226 (office)  
>> Fax: (507) 389 6376  
>>  
>> Email: [mahbubur.syed@mnsu.edu](mailto:mahbubur.syed@mnsu.edu) <<mailto:mahbubur.syed@mnsu.edu>>  
>> URL: <http://krypton.mnsu.edu/~syedm/>  
>> <<http://krypton.mnsu.edu/%7Esyedm/>> <<http://krypton.mnsu.edu/%7Esyedm/>>

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> Youwen Xu, Ph.D.  
> Acting Chair  
> Department of Physics and Astronomy  
> Minnesota State University, Mankato  
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