Code # Enter text…

**Course Revision Proposal Form**

**[x] Undergraduate Curriculum Council**

**[ ] Graduate Council**

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

Email completed proposals to [curriculum@astate.edu](mailto:curriculum@astate.edu) for inclusion in curriculum committee agenda.

|  |  |
| --- | --- |
| John Hershberger 9/29/2017 **Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **COPE Chair (if applicable)** |
| William Burns 9/29/2017 **Department Chair:** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Head of Unit (If applicable)** |
| David F. Gilmore 9/29/2017 **College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Undergraduate Curriculum Council Chair** |
| Anne A. Grippo 10/3/2107 **College Dean** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Graduate Curriculum Committee Chair** |
| |  |  | | --- | --- | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |   **General Education Committee Chair (If applicable)** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Vice Chancellor for Academic Affairs** |

1. Contact Person (Name, Email Address, Phone Number)

William Burns, [wburns@astate.edu](mailto:wburns@astate.edu) 870-972-3086

2. Proposed Starting Term and Bulletin Year for Change to Take Effect

Spring 2018

3. Current Course Prefix and Number

CHEM 3154

3.1 – [YES] Request for Course Prefix and Number change

If yes, include new course Prefix and Number below. *(Confirm that number chosen has not been used before. For variable credit courses, indicate variable range. Proposed number for experimental course is 9. )*

CHEM 3153

3.2 – If yes, has it been confirmed that this course number is available for use? Yes / No

*If no: Contact Registrar’s Office for assistance.*

4. Current Course Title

Survey of Physical Chemistry

4.1 – [NO] Request for Course Title Change

If yes, include new Course Title Below. *If title is more than 30 characters (including spaces), provide short title to be used on transcripts. Title cannot have any symbols (e.g. slash, colon, semi-colon, apostrophe, dash, and parenthesis). Please indicate if this course will have variable titles (e.g. independent study, thesis, special topics).*

Enter text...

5. – [NO ] Request for Course Description Change.

If yes, please include brief course description (40 words or fewer) as it should appear in the bulletin.

Enter text...

6. – [NO ] Request for prerequisites and major restrictions change.

*(If yes, indicate all prerequisites. If this course is restricted to a specific major, which major. If a student does not have the prerequisites or does not have the appropriate major, the student will not be allowed to register).*

1. Are there any prerequisites? Yes / No
   1. If yes, which ones?

Enter text...

* 1. Why or why not?

Enter text...

1. Is this course restricted to a specific major? NO
   1. If yes, which major? Enter text...

7. – [NO ] Request for Course Frequency Change(e.g. Fall, Spring, Summer). *Not applicable to Graduate courses.*

a. If yes, please indicate new frequency:

Enter text...

8. – [NO ] Request for Class Mode Change

*If yes, indicate if this course will be lecture only, lab only, lecture and lab, activity, dissertation, experiential learning, independent study, internship, performance, practicum, recitation, seminar, special problems, special topics, studio, student exchange, occupational learning credit, or course for fee purpose only (e.g. an exam)? Please choose one.*

Enter text...

9. – [NO ] Request for grade type change

*If yes, what is the grade type (i.e. standard letter, credit/no credit, pass/fail, no grade, developmental, or other [please elaborate])*

Enter text...

10. Is this course dual listed (undergraduate/graduate)? NO

a. If yes, indicate course prefix, number and title of dual listed course.

Enter text...

11. Is this course cross listed? NO

*(If it is, all course entries must be identical including course descriptions. Submit appropriate documentation for requested changes. It is important to check the course description of an existing course when adding a new cross listed course.)*

1. If yes, please list the prefix and course number of cross listed course.

Enter text...

1. Are these courses offered for equivalent credit? Yes / No

Please explain. Enter text...

12. Is this course change in support of a new program? NO

a. If yes, what program?

Enter text...

13. Does this course replace a course being deleted? NO

a. If yes, what course?

Enter text...

14. Will this course be equivalent to a deleted course or the previous version of the course? Yes

a. If yes, which course?

CHEM 3154

15. Does this course affect another program? YES

If yes, provide contact information from the Dean, Department Head, and/or Program Director whose area this affects.

CHEM 3154 is an elective of the BS Biology Pre-professional Studies Emphasis program.

Tom Risch, trisch@astate.edu

16. Does this course require course fees? NO

*If yes: Please attach the New Program Tuition and Fees form, which is available from the UCC website.*

**Revision Details**

17. Please outline the proposed revisions to the course.

*Include information as to any changes to course outline, special features, required resources, or in academic rationale and goals for the course.*

Change Survey of Physical Chemistry from a 4 credit hour course to a 3 credit hour course.

18. Please provide justification to the proposed changes to the course.

The course was originally developed in 2004. Over time, the depth at which topics are presented has been refined, and faculty indicate they no longer need 4 hours per week to present the content..

19. Do these revisions result in a change to the assessment plan?

[NO]

*\*If yes: Please complete the Assessment section of the proposal on the next page.*

*\*If no: Skip to Bulletin Changes section of the proposal.*

***\*See question 19 before completing the Assessment portion of this proposal.***

**Assessment**

**University Outcomes**

20. Please indicate the university-level student learning outcomes for which this new course will contribute. Check all that apply.

|  |  |  |
| --- | --- | --- |
| * 1. **[ ]** Global Awareness | * 1. **[ ]** Thinking Critically | * 1. **[ ]** Information Literacy |

**Relationship with Current Program-Level Assessment Process**

21. What is/are the intended program-level learning outcome/s for students enrolled in this course? Where will this course fit into an already existing program assessment process?

Enter text...

22. Considering the indicated program-level learning outcome/s (from question #23), please fill out the following table to show how and where this course fits into the program’s continuous improvement assessment process.

*For further assistance, please see the ‘Expanded Instructions’ document available on the UCC - Forms website for guidance, or contact the Office of Assessment at 870-972-2989.*

|  |  |
| --- | --- |
| **Program-Level Outcome 1 (from question #23)** | Type outcome here. What do you want students to think, know, or do when they have completed the course? |
| Assessment Measure | Please include direct and indirect assessment measure for outcome. |
| Assessment  Timetable | What semesters, and how often, is the outcome assessed? |
| Who is responsible for assessing and reporting on the results? | Who (person, position title, or internal committee) is responsible for assessing, evaluating, and analyzing results, and developing action plans? |

*(Repeat if this new course will support additional program-level outcomes)*

**Course-Level Outcomes**

23. What are the course-level outcomes for students enrolled in this course and the associated assessment measures?

|  |  |
| --- | --- |
| **Outcome 1** | Type outcome here. What do you want students to think, know, or do when they have completed the course? |
| Which learning activities are responsible for this outcome? | List learning activities. |
| Assessment Measure | What will be your assessment measure for this outcome? |

*(Repeat if needed for additional outcomes)*

**Bulletin Changes**

|  |
| --- |
| **Instructions** |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Follow the following guidelines for indicating necessary changes.**  **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.**  - Deleted courses/credit hours should be marked with a red strike-through (~~red strikethrough~~)  - New credit hours and text changes should be listed in blue using enlarged font (blue using enlarged font).  - Any new courses should be listed in blue bold italics using enlarged font (***blue bold italics using enlarged font***)  *You can easily apply any of these changes by selecting the example text in the instructions above, double-clicking the ‘format painter’ icon 🡪 , and selecting the text you would like to apply the change to.*  *Please visit* [*https://youtu.be/yjdL2n4lZm4*](https://youtu.be/yjdL2n4lZm4) *for more detailed instructions.* |

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**Major in Biological Sciences (cont.)**

**Bachelor of Science Emphasis in Pre-professional Studies**

A complete le [at http://registrar.astate.edu/.](http://registrar.astate.edu/)

|  |  |
| --- | --- |
| **Select three of the following:**  BIO 3203, Pathophysiology  BIO 4103, Virology  BIO 4113 **AND** 4111, Immunology and Laboratory BIO 4123, Cell Signaling  BIO 4133 **AND** 4131, Cell Biology and Laboratory BIO 4143, Pharmacology  BIO 4163 **AND** 4161, Mammalian Neurobiology and Laboratory BIO 4213 **AND** 4211, Human Genetics and Laboratory  BIO 4332 **AND** 4342, Animal Histology and Laboratory BIO 4343 **AND** 4341, Animal Embryology and Laboratory BIO 4552 **AND** 4551, Medical Mycology and Laboratory  BIO 4623 **AND** 4621, Environmental Microbiology and Laboratory CHEM **~~3154~~ 3153**, Survey of Physical Chemistry  CHEM 4243, Biochemistry  PHIL 3713, Ethics in the Health Professions STAT 3233, Applied Statistics I | 9-12 |
| **Sub-total** | **24-28** |
| **Electives:** | **Sem. Hrs.** |
| Electives | **14-18** |
| **Total Required Hours:** | **120** |

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**Major in Chemistry**

**Bachelor of Arts**

A complete 8-semester degree plan is available [at http://registrar.astate.edu/.](http://registrar.astate.edu/)

|  |  |
| --- | --- |
| **University Requirements:** |  |
| See University General Requirements for Baccalaureate degrees (p. 41) |  |
| **First Year Making Connections Course:** | **Sem. Hrs.** |
| PHSC 1003, Making Connections - Chemistry and Physics | **3** |
| **General Education Requirements:** | **Sem. Hrs.** |
| See General Education Curriculum for Baccalaureate degrees (p. 84)  **Students with this major must take the following:**  *MATH 2204, Calculus I*  *CHEM 1013* ***AND*** *1011, General Chemistry I and Laboratory BIO 2013* ***AND*** *2011, Biology of the Cell and Laboratory*  *Twelve hours of Social Sciences (Required Departmental Gen. Ed. Option)* | **36** |
| **Major Requirements:** | **Sem. Hrs.** |
| CHEM 1023 **AND** 1021, General Chemistry II and Laboratory | 4 |
| CHEM 2004, Descriptive Inorganic Chemistry | 4 |
| CHEM 3054, Quantitative Analysis | 4 |
| CHEM 3103 **AND** 3101, Organic Chemistry I and Laboratory | 4 |
| CHEM 3113 **AND** 3111, Organic Chemistry II and Laboratory | 4 |
| CHEM **~~3154~~ 3153**, Survey of Physical Chemistry | ~~4~~ **3** |
| CHEM 4243, Biochemistry | 3 |
| CHEM 4501 Chemistry Capstone | 1 |
| PHYS 2054, General Physics I **AND**  PHYS 2064 General Physics II **OR** PHYS 2034, University Physics I **AND** PHYS 2044, University Physics II | 8 |
| **Sub-total** | **35** |
| **Electives:**  *Twenty-six hours of the electives below must be upper-level.* | **Sem. Hrs.** |
| Electives | **46** |
| **Total Required Hours:** | **120** |

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**Major in Chemistry**

**Bachelor of Arts Emphasis in Pre-pharmacy**

A complete 8-semester degree plan is available [at http://registrar.astate.edu/.](http://registrar.astate.edu/)

|  |  |
| --- | --- |
| **University Requirements:** |  |
| See University General Requirements for Baccalaureate degrees (p. 41) |  |
| **First Year Making Connections Course:** | **Sem. Hrs.** |
| PHSC 1003, Making Connections - Chemistry and Physics | **3** |
| **General Education Requirements:** | **Sem. Hrs.** |
| See General Education Curriculum for Baccalaureate degrees (p. 84)  **Students with this major must take the following:**  *MATH 2204, Calculus I*  *CHEM 1013* ***AND*** *1011, General Chemistry I and Laboratory BIO 2013* ***AND*** *2011, Biology of the Cell and Laboratory ECON 2313, Principles of Macroeconomics*  *Twelve hours of Social Sciences (Required Departmental Gen. Ed. Option)* | **36** |
| **Major Requirements:** | **Sem. Hrs.** |
| CHEM 1023 **AND** 1021, General Chemistry II and Laboratory | 4 |
| CHEM 2004, Descriptive Inorganic Chemistry | 4 |
| CHEM 3054, Quantitative Analysis | 4 |
| CHEM 3103 **AND** 3101, Organic Chemistry I and Laboratory | 4 |
| CHEM 3113 **AND** 3111, Organic Chemistry II and Laboratory | 4 |
| CHEM ~~3154~~ **3153**, Survey of Physical Chemistry | ~~4~~ **3** |
| CHEM 4243, Biochemistry | 3 |
| CHEM 4501 Chemistry Capstone | 1 |
| PHYS 2054, General Physics I **AND**  PHYS 2064 General Physics II **OR** PHYS 2034, University Physics I **AND** PHYS 2044, University Physics II | 8 |
| **Sub-total** | **35** |
| **Emphasis Area (Pre-pharmacy):** | **Sem. Hrs.** |
| BIO 1303 **AND** 1301, Biology of Animals and Laboratory | 4 |
| BIO 4104, Microbiology | 4 |
| **Sub-total** | **8** |
| **Electives:**  *Twenty-two hours of the electives below must be upper-level.* | **Sem. Hrs.** |
| Electives | **38** |
| **Total Required Hours:** | **120** |

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**Major in General Science**

**Bachelor of Science in Education Emphasis in Chemistry**

A complete 8-semester degree plan is available [at http://registrar.astate.edu/.](http://registrar.astate.edu/)

|  |  |
| --- | --- |
| **University Requirements:** |  |
| See University General Requirements for Baccalaureate degrees (p. 41) |  |
| **First Year Making Connections Course:** | **Sem. Hrs.** |
| PHSC 1003, Making Connections - Chemistry and Physics | **3** |
| **General Education Requirements:** | **Sem. Hrs.** |
| See General Education Curriculum for Baccalaureate degrees (p. 84)  **Students with this major must take the following:**  *MATH 2204, Calculus I*  *CHEM 1013* ***AND*** *1011, General Chemistry I and Laboratory HIST 2763, The United States to 1876* ***OR***  *HIST 2773, The United States since 1876 PSY 2013, Introduction to Psychology*  *Twelve hours of Social Sciences (Required Departmental Gen. Ed. Option)* | **36** |
| **Major Requirements:** | **Sem. Hrs.** |
| CHEM 1023 **AND** 1021, General Chemistry II and Laboratory | 4 |
| CHEM 2004, Descriptive Inorganic Chemistry | 4 |
| CHEM 3054, Quantitative Analysis | 4 |
| CHEM 3103 **AND** 3101, Organic Chemistry I and Laboratory | 4 |
| CHEM 3113 **AND** 3111, Organic Chemistry II and Laboratory | 4 |
| CHEM ~~3154~~ **3153**, Survey of Physical Chemistry | ~~4~~ **3** |
| PHYS 2034, University Physics I **OR** PHYS 2054, General Physics I | 4 |
| PHYS 2044, University Physics II **OR** PHYS 2064, General Physics II | 4 |
| **Sub-total** | **~~32~~  31** |
| **Professional Education Requirements:**  Grade of “C” or better required for all Professional Education Requirements.  Courses denoted below with an asterisk (\*) require admission to the Teacher Education Program. For additional information, see Professional Education Requirements for Sec- ondary Majors in the College of Education and Behavioral Science section. | **Sem. Hrs.** |
| \*EDSC 4593, Methods and Materials for Teaching Science in the Secondary School | 3 |
| ELSE 3643, The Exceptional Student in the Regular Classroom | 3 |
| PSY 3703, Educational Psychology | 3 |
| SCED 2513, Introduction to Secondary Teaching | 3 |
| \*SCED 3515, Performance Based Inst. Design | 5 |
| \*SCED 4713, Educational Measurement with Computer Applications | 3 |
| \*TICH 4826, Teaching Internship in the Secondary School | 12 |
| **Sub-total** | **32** |
| **Additional General Requirements for Teacher Education:** | **Sem. Hrs.** |
| HLTH 2513, Principles of Personal Health | **3** |
| **Electives:** | **Sem. Hrs.** |
| Electives | **~~14~~ 15** |
| **Total Required Hours:** | **120** |

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The bulletin can be accessed at <http://www.astate.edu/a/registrar/students/>

# Minor in Chemistry

***Department of Chemistry and Physics Minors***

|  |  |
| --- | --- |
| **Required Courses:***.* | **Sem. Hrs.** |
| CHEM 1013 **AND** 1011, General Chemistry I and Laboratory | 4 |
| CHEM 1023 **AND** 1021, General Chemistry II and Laboratory | 4 |
| CHEM 3103 **AND** 3101, Organic Chemistry I and Laboratory | 4 |
| CHEM 3113 **AND** 3111, Organic Chemistry II and Laboratory | 4 |
| **Select two of the following:**  CHEM 3054, Quantitative Analysis  CHEM ~~3154~~ 3153, Survey of Physical Chemistry  CHEM 4243 **AND** 4241, Biochemistry and Laboratory | ~~8~~ 7-8 |
| **Total Required Hours:** | **24** |

|  |  |
| --- | --- |
| **Total Required Hours:** | **~~24~~ 23-24** |

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**CHEM 2004. Descriptive Inorganic Chemistry** Systematic study of the chemistry of the elements with problem solving using microcomputers. Lecture four hours per week. Special course fees may apply. Prerequisite, CHEM 1021 and C or better in CHEM 1023. Fall.

**CHEM 2393. Special Problems** Selected special or current topics of interest to faculty and students that require no prerequisite courses. This course is appropriate for a general student audience. See individual semester schedules for more information about each offering. Demand.

**CHEM 3051. Try Out the Classroom** Introductory classroom experience led by ASU STEM faculty and area teachers. Topics include Arkansas science/math curriculum, classroom manage- ment, laboratory safety, and basic teaching skills. Students will develop and present science/math activities in area classrooms and campus outreach. Prerequisites, 8 CHEM credit hours. Fall.

**CHEM 3054. Quantitative Analysis** Emphasizes quantitative and critical analysis based on standard analytical techniques and instrumentation. Topics include statistics, material equilibria, basic skills in instrumentation and electroanalytical methods. Lecture two hours, laboratory six hours per week. Special course fees may apply. Prerequisites, MATH 2204 or 2194, CHEM 1021, and C or better in CHEM 1023. Spring.

**CHEM 3101. Organic Chemistry ILaboratory** Laboratory skills illustrating the principles of Organic Chemistry I. Three hours per week. Special course fees may apply. Corequisite or prerequisite, CHEM 3103. Credit for this course is contingent upon earlier or simultaneous completion of CHEM 3103. Fall, Spring, Summer.

**CHEM 3103. Organic Chemistry I** Study of the nomenclature, bonding, preparations and reactions of compounds of carbon, including aliphatic and aromatic hydrocarbons, haloalkanes, alcohols, and ethers. Lecture three hours per week. Special course fees may apply. Prerequisites, CHEM 1021 and C or better in CHEM 1023. Fall, Spring, Summer.

**CHEM 3111. Organic Chemistry II Laboratory** Laboratory skills illustrating the principles of Organic Chemistry II. Three hours per week. Special course fees may apply. Prerequisite, CHEM 3101. Credit for this course is contingent upon earlier or simultaneous completion of CHEM 3113. Fall, Spring, Summer.

**CHEM 3113. Organic Chemistry II** Continuation of Organic Chemistry I, including the study of phenols, aldehydes, ketones, carboxylic acids and their derivatives, amines, proteins, carbohydrates, lipids and nucleic acids. Spectroscopic methods of structure determination are also presented. Lecture three hours per week. Special course fees may apply. Prerequisites, CHEM 3101 and C or better in CHEM 3103. Fall, Spring, Summer.

**CHEM 3124. Physical Chemistry I** Systematic, rigorous development of fundamental chemical concepts presented in a unified lecture and laboratory format. Special course fees may apply. Prerequisites, PHYS 2044 or PHYS 2064, and MATH 3254. Fall.

**CHEM 3134. Physical Chemistry II** Systematic, rigorous development of fundamental chemical concepts presented in a unified lecture and laboratory format. Prerequisite, CHEM 3124. Spring.

**CHEM ~~3154~~ 3153 . Survey of Physical Chemistry** A one semester course exploring the systematic development of fundamental chemical concepts. Special course fees may apply. Prerequisites, PHYS 2044 or PHYS 2064, MATH 2204 or MATH 2194, CHEM 3113. Spring.

**CHEM 4043. Environmental Chemistry** An overview of the chemistry of natural waters, soils, and the atmosphere. Emphasis will be on the chemical and biological agents which affect the quality of the environment. The most commonly used analytical techniques and quality assurance and control procedures will be covered. Special course fees may apply. Prerequisites, CHEM 3103 and CHEM 3101. Fall, even.

**CHEM 4204. Inorganic Chemistry** Includes the recent concepts of bonding and molecular structure as well as some of the less common chemistry of the elements. Lecture three hours, laboratory three hours per week. Special course fees may apply. Prerequisites, CHEM 3124. Spring.

**CHEM 4224. Instrumentation** Application and operational theories of modern instruments. Laboratory includes use of gas chromatography, infrared, ultraviolet visible and atomic absorption, spectroscopy, and electrochemical techniques. Lecture two hours, laboratory six hours per week. Special course fees may apply. Prerequisites, CHEM 3054, CHEM 3124. Fall.