APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted to UCCC Mail Stop 9702 (281 Garner Hall), Phone: 325-9410.

College: Arts & Sciences
Department: Chemistry

Contact Person: Whitnee Nettles
Mail Stop: 9573
E-mail: wlw99@msstate.edu

Nature of Change: Modification and adding new concentration
Date Initiated: 02/23/2023
Effective Date: Fall 2023

Current Degree Program Name: B.A. in Chemistry
Major: Chemistry
Concentration: None

New Degree Program Name: B.A. in Chemistry
Major: Chemistry
Concentration: None; Pre-Health Professional (new)

Summary of Proposed Changes (Modification):
The base B.A. degree is being changed to align the degree program with modified course names and numbers and to update the math requirements.

Summary of Proposed Changes (New Concentration):
This is a new concentration being added to the existing B.A. in Chemistry. This new Pre-Health Professional concentration is designed for students pursuing medical school, dental school, or other professional school in a health-related field. The term "Pre-Health Professional" is being used instead of "Pre-Medical" or a similar label in order to avoid confusion with the B.S. in Chemistry Pre-Medical concentration.

Approved:	Date:
Department Head	3-15-23
Director of Academic Quality	3/22/23
Chair, College or School Curriculum Committee	4/17/23
Dean of College or School	4/19/23
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council(if applicable)	
Chair, Deans Council	

1. **CATALOG DESCRIPTION**
   See chart below.

2. **CURRICULUM OUTLINE**

CURRENT Degree Description	PROPOSED Degree Description
Degree: Bachelor of Arts Major: Chemistry	No change
The Department of Chemistry offers two degree programs: the *Bachelors* of Science (B.S.) and the *Bachelors* of Arts (B.A.) degrees. A total of 124 hours is required to complete each degree program. Our chemistry degree programs provide an excellent foundation for career paths in graduate school, teaching, medicine, pharmacy, dental, and numerous industry positions. The B.S. degree program offers three additional concentrations: the American Chemical Society (ACS) concentration, the Pre-Medical concentration, and the Pre-Pharmacy concentration. The ACS concentration is designed to prepare graduates for a career in industry or to further their education through graduate studies. The American Chemical Society (ACS) has continually approved the department and its curriculum since 1941, certifying degrees earned by completing the B.S. degree with the ACS concentration. The Pre-Medical concentration is intended to aid students in meeting medical school pre-requisites. This concentration combines required biology courses with specific chemistry courses designed to prepare students for the rigors of medical schools, dental schools, or other professional schools. Our Pre-Medical concentration is based on the pre-requisites required by the University of Mississippi Medical Center (UMMC). The Pre-Pharmacy concentration is designed to meet the pre-requisites for the School of Pharmacy at the University of Mississippi. These requirements mirror those of other pharmacy schools, but students who wish to attend other pharmacy schools should communicate this information to their advisor. The B.A. degree program has a stronger liberal arts emphasis and could serve as a preparation for a secondary teaching career, chemical sales, or further study at a professional school. The Department of Chemistry also offers a M.S. (non-thesis and thesis) and Ph.D. in Chemistry (see the Graduate Catalog for description of programs and requirements for more information on these advanced degrees). Chemistry Minor Requirements Students in other majors may earn a minor in Chemistry by achieving at least a 2.00 average in a total of 22 hours of chemistry (CH) courses with 14 of the hours in upper-	The Department of Chemistry offers two degree programs: the **Bachelor** of Science (B.S.) and the **Bachelor** of Arts (B.A.) degrees. A total of 124 hours is required to complete each degree program. Our chemistry degree programs provide an excellent foundation for career paths in graduate school, teaching, medicine, pharmacy, dental, and numerous industry positions. The B.S. degree program offers three additional concentrations: the American Chemical Society (ACS) concentration, the Pre-Medical concentration, and the Pre-Pharmacy concentration. The ACS concentration is designed to prepare graduates for a career in industry or to further their education through graduate studies. The American Chemical Society (ACS) has continually approved the department and its curriculum since 1941, certifying degrees earned by completing the B.S. degree with the ACS concentration. The Pre-Medical concentration is intended to aid students in meeting medical school pre-requisites. This concentration combines required biology courses with specific chemistry courses designed to prepare students for the rigors of medical schools, dental schools, or other professional schools. Our Pre-Medical concentration is based on the pre-requisites required by the University of Mississippi Medical Center (UMMC). The Pre-Pharmacy concentration is designed to meet the pre-requisites for the School of Pharmacy at the University of Mississippi. These requirements mirror those of other pharmacy schools, but students who wish to attend other pharmacy schools should communicate this information to their advisor. The B.A. degree program has a stronger liberal arts emphasis and could serve as a preparation for a secondary teaching career, chemical sales, or further study at a professional school. The Department of Chemistry also offers a M.S. (non-thesis and thesis) and Ph.D. in Chemistry (see the Graduate Catalog for description of programs and requirements for more information on these advanced degrees). Chemistry Minor Requirements Students in other majors may earn a minor in Chemistry by achieving at least a 2.00 average in a total of 22 hours of chemistry (CH) courses with 14 of the hours in upper-division courses (3000-4000 level), and a minimum of 11 of the total hours completed at MSU. Students interested in a chemistry minor should contact the Academic Coordinator.

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CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
English Composition: EN 1103 English Composition I or *EN 1163 Accelerated Composition I* EN 1113 English Composition II or EN 1173 Accelerated Composition II	 3 3	English Composition: EN 1103 English Composition I or **EN 1104 Expanded English Composition I** EN 1113 English Composition II or EN 1173 Accelerated Composition II	 3 3
Foreign Language: *3 semesters one Foreign Language (see advisor)*	 *9*	Foreign Language: **Foreign Language I** **Foreign Language II** **Foreign Language III**	 **3** **3** **3**
Humanities: Literature– *see General Education courses* History– *see General Education courses* Philosophy– *see A&S core* *Electives (Must be from 2 different areas) See A&S Core*	 3 3 3 9	Humanities: Literature– **A&S core** History– **A&S core** Philosophy– **A&S core** **Humanities Electives** [1]	 3 3 3 9
Mathematics: *See A&S requirements*	 *6*	Mathematics: **MA 1713 Calculus I** **MA 1723 Calculus II or MA/ST 2113** **Introduction to Statistics or MA/ST 3123** **Introduction to Statistics Inference**	 **3** **3**
Fine Arts: *See A&S requirements*	 3	Fine Arts: **A&S core**	 3
Natural Sciences: *See Major Core – Consult advisor for specifics*	 *9-12*	Natural Sciences: **Satisfied within the major**	
Social Sciences: *See A&S requirements* Social Sciences Electives – *See advisor* [5]	 6 12	Social Sciences: **A&S core** Social Science Electives [2]	 6 12
Major Core: Student should check prerequisites for all courses. See advisor. CH 1141 Professional Chemistry: Paths CH 1234 Integrated Chemistry I [1] CH 1244 Integrated Chemistry II [2] CH 2141 Professional Chemistry: Tools *CH 2311 Analytical Chemistry I Laboratory* *CH 2313 Analytical Chemistry I* CH 3141 Professional Chemistry: Literature	 1 4 4 1 1 3 1	Major Core: Student should check prerequisites for all courses. See advisor. CH 1141 Professional Chemistry: Paths CH 1234 Integrated Chemistry I [3] CH 1244 Integrated Chemistry II [4] CH 2141 Professional Chemistry: Tools **CH 3311 Analytical Chemistry I Laboratory** **CH 3313 Analytical Chemistry I** CH 3141 Professional Chemistry: Literature	 1 4 4 1 1 3 1

CH 3213 Inorganic Chemistry	3	CH 3213 Inorganic Chemistry **Or CH 4403 Biophysical Chemistry or CH 4413 Thermodynamics and Kinetics or CH 4423 Quantum Mechanics and Spectroscopy**	3
CH 4141 Professional Chemistry: Research	1	CH 4141 Professional Chemistry: Research	1
CH 4554 Integrated Organic I [3]	4	CH 4554 Integrated Organic I [5]	4
CH 4564 Integrated Organic II [4]	4	CH 4564 Integrated Organic II [6]	4
CH 4711 Senior Seminar	1	CH 4711 Senior Seminar	1
Chemistry Electives – See advisor [6]	7		
PH 1113 General Physics I *or PH 2213 Physics I*	3	**PH 2213 Physics I** **or PH 1113 General Physics I**	3
PH 1123 General Physics II *or PH 2223 Physics II*	3	**PH 2223 Physics II** **or PH 1123 General Physics II**	3
PH 1133 General Physics III *or PH 2233 Physics III*	3	**PH 2233 Physics III** **or PH 1133 General Physics III**	3
Oral Communication *Requirement*: *Satisfied by successful completion of CH 1141, 2141, 3141, 4141, and 4711.*		Oral Communication: **Satisfied with CH 1141, 2141, 3141, 4141, and 4711 sequence in the major**	
Writing Requirement: *Satisfied by successful completion of CH 3141, 4141, and 4711.*		**Jr/Sr Writing**: **Satisfied with CH 3141, 4141, and 4711 sequence in the major**	
Computer Literacy: *Satisfied by successful completion of CH 1141, 2141, 2313, 3141, 4141, and 4711.*			
General Electives: *Number of credit hours needed to bring the total number of credit hours to 124.* Consult advisor.			
		Choose one of the following paths to complete the B.A. degree:	
		B.A., no specified concentration: **CH or BCH Electives** **General Electives- consult advisor** **Total Hours**	 **6** **21** **124**
		Pre-Health Professional Concentration: **BCH 4603 General Biochemistry I** **BCH 4613 General Biochemistry II** **BIO 1134 Biology I** **BIO 1144 Biology II** **BIO 2103 Cell Biology** **BIO 3004 Human Anatomy** **BIO 3014 Human Physiology** **General Electives- consult advisor**	 **3** **3** **4** **4** **3** **4** **4** **2**

		Total Hours	**124**
[1] CH 1234 can be replaced by CH 1213 and CH 1211 [2] CH 1244 can be replaced by CH 1223 and CH 1221 [3] CH 4554 can be replaced by CH 4513 and CH 4511 [4] CH 4564 can be replaced by CH 4523 and CH 4521 [5] *Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed.* [6] *Advisor approved chemistry courses 3000-level and above*		**Note: Students must complete 31 upper division hours in A&S in residence at MSU.** **[1] Humanities electives must be courses in A&S and must cover two disciplines.** **[2] Social Science electives must be courses in A&S. The total 18 hours in Social Science must cover four disciplines; maximum of 6 hours per discipline; only one EC and one CO from A&S core list allowed.** [3] CH 1234 can be replaced by CH 1213 and CH 1211 [4] CH 1244 can be replaced by CH 1223 and CH 1221 [5] CH 4554 can be replaced by CH 4513 and CH 4511 [6] CH 4564 can be replaced by CH 4523 and CH 4521	

3. JUSTIFICATION AND LEARNING OUTCOMES

The Department of Chemistry is seeking to change the math requirements for their B.A. program, allowing MA 1723 Calculus II or MA/ST 2113 Introduction to Statistics or MA/ST 3123 Introduction to Statistics Inference to count for their second math course. In parallel with this, Physical Chemistry is now being offered as a choice in the major core. This will allow the students to choose the preferred path between Physical Chemistry or Inorganic Chemistry in relation to the student's career path.

In addition, a new concentration of Pre-Health Professional has been developed to provide our pre-health professional students with a curriculum designed for them.

4. LETTER OF SUPPORT

See attached.

5. PROPOSED 4-LETTER ABBREVIATION

CHEM (no change required)

6. EFFECTIVE DATE

Fall 2023

MISSISSIPPI STATE UNIVERSITY

Department of Chemistry
P.O. Box 9573
310 President Circle
1115 Hand Lab
Mississippi State, MS 39762

P. 662.325.3584
F. 662.325.1618
www.chemistry.msstate.edu

March 10, 2023

Dr. Andy Perkins
Chair, University Committee on Courses and Curricula
Professor, Associate Department Head

Dear Dr. Perkins,

The faculty of the Department of Chemistry have reviewed and approved the proposed curriculum updates for our B.A. and B.S. degree plans.

We, the Department of Chemistry Undergraduate Affairs Committee request that the University Committee on Courses and Curricula (UCCC) approve these changes.

Sincerely,

Whitnee Nettles
Assistant Clinical Professor and
Head of Curriculum Committee

Edwin Webster
Professor
Committee Member

Steven Gwaltney
Professor
Committee Member

Eric Dornshuld
Assistant Clinical Professor
Committee Member

Teresa Brown
Instructor/Lab Coordinator
Committee Member

MISSISSIPPI STATE UNIVERSITY

COLLEGE OF ARTS & SCIENCES
DEPARTMENT OF BIOLOGICAL SCIENCES

P.O. Box GY
295 E Lee Blvd
Mississippi State, MS 39762

P. 662.325.3120
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Giselle Thibaudeau, PhD
Professor and Interim Department Head
Department of Chemistry

April 12, 2023

Dear Dr. Thibaudeau,

I am writing this letter in support of the Department of Chemistry's request to add new concentrations to your BA and BS degree programs. Although these proposals include the BIO courses you note (BIO 1134, 1144, 2103, 3004, and 3014), after discussion with our BIO advising staff, we agree that any additional students can be accommodated in our regular offerings for these courses without changes.

Sincerely,

Angus Dawe Digitally signed by Angus Dawe
Date: 2023.04.12 15:34:00 -05'00'

Angus L. Dawe, Ph.D.
Department Head & Professor

dawe@biology.msstate.edu 662.325.7577 217 Harned Hall

MISSISSIPPI STATE UNIVERSITY.

COLLEGE OF AGRICULTURE & LIFE SCIENCES
Department of Biochemistry, Molecular Biology,
Entomology and Plant Pathology
P. O. Box 9655
Mississippi State, MS 39762
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Mar. 13, 2023

MEMORANDUM

TO: University Committee on Courses and Curricula

FROM: Biochemistry, Molecular Biology, Entomology, and Plant Pathology (BCH-EPP) Curriculum Committee

Re: Letter of support for the chemistry curriculum modifications

The BCH-EPP Curriculum Committee has reviewed the proposal on degree curriculum modifications from the Department of Chemistry, which proposes to 1) add BCH 4603 and BCH 4613 as concentration courses for B.A. Pre-health concentration and electives for B.A. without concentration; 2) add BCH 4603 as required and BCH 4613 as an elective for B.S. ACS degree; 3) add both BCH 4603 and BCH 4613 as concentration courses for both B.S. Pre-Pharmacy and B.S. Pre-Medical concentrations; and 4) add both BCH 4603 and BCH 4613 as electives for B.S. without concentration. It is believed that the additions will enrich the curricula of the chemistry programs.

Regards,

Digitally signed by Shien Lu
DN: cn=Shien Lu, o=Mississippi State University, ou, email=sl332@msstate.edu, c=US
Date: 2023.03.13 15:55:05 -05'00'

Shien Lu, Ph.D.
Professor and Committee Chair
sl332@plantpath.msstate.edu

John J. Riggins
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John J. Riggins, Ph.D.
Professor
jriggins@entomology.msstate.edu

Aswathy Rai
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Aswathy Rai, Ph.D.
Assistant Clinical Professor and Undergraduate Coordinator
aswathy.rai@msstate.edu

Federico G. Hoffmann
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Federico Hoffmann, Ph.D.
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Natraj Krishnan
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Natraj Krishnan, Ph.D.
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nkrishnan@entomology.msstate.edu