



MEMORANDUM

To: Julio Frenk
University President

From: Linda L. Neider
Chair, Faculty Senate

A handwritten signature in blue ink, appearing to read 'L. Neider', is placed over the 'From:' field.

Date: April 27, 2020

Subject: Faculty Senate Legislation #2019-79(B) – Curriculum Change to the Certified Bachelor of Science (B.S.) in Chemistry Program – College of Arts and Sciences

The Faculty Senate, at its April 22, 2020 meeting, had no objections to the approval of the Miami College of Arts and Sciences proposal to change the certified B.S. in Chemistry curriculum. The purpose of this change is to meet the requirements of their governing body, American Chemical Society, which required changing a few required courses, changing undergraduate research courses to specific laboratory courses, and adding a program overview.

The proposal is enclosed for your reference.


This legislation is now forwarded to you for your action.

LLN/ss/rh

cc: Jeffrey Duerk, Executive Vice President and Provost
Leonidas Bachas, Dean, College of Arts and Sciences
Marc Knecht, Professor, College of Arts and Sciences

CAPSULE: Faculty Senate Legislation #2019-79(B) – Curriculum Change to the Certified Bachelor of Science (B.S.) in Chemistry Program – College of Arts and Sciences

PRESIDENT'S RESPONSE

APPROVED:  _____ DATE: 5/20/20
(President's Signature)

OFFICE OR INDIVIDUAL TO IMPLEMENT: Dean Leonidas Bachas, College of Arts & Sciences

EFFECTIVE DATE OF LEGISLATION: IMMEDIATELY
(Pending any further Board of Trustees approval.)

NOT APPROVED AND REFERRED TO: _____

REMARKS (IF NOT APPROVED): _____

Program Change Request

Date Submitted: 02/27/20 2:55 pm

Viewing: **CHEMC_BS,CHEMC_AS_A : Certified
B.S. in Chemistry**

Last edit: 02/27/20 2:55 pm

Changes proposed by: Marc Knecht (knecht)

Catalog Pages Using
this Program
[Certified B.S. in Chemistry](#)

In Workflow

1. **PG Assessment and Accreditation**
2. **PG CHM Chair**
3. **PG University Curriculum Committee**
4. **PG FS Office for GWC**
5. PG FS GWC
6. PG Faculty Senate
7. PG FS Office for President
8. PG Registrar

Approval Path

1. 03/18/20 5:19 pm
Patty Murphy (pxm491): Approved for PG Assessment and Accreditation
2. 03/19/20 1:32 pm
Roger Leblanc (rml): Approved for PG CHM Chair
3. 03/27/20 11:53 am
David Chin (dchin1): Approved for PG University Curriculum Committee

Please list the authors of this proposal including name, rank/title, program/department, and school.

Proposer(s) Name

Marc R. Knecht, Professor, CHM, CAS

Change Type All Other Changes

Provide a brief summary of the change

We've updated the certified BS in chemistry to meet the requirements of our governing body (the American Chemical Society). This required changing a few required courses to elective courses and changing undergraduate research courses to specific laboratory courses. We also added a program overview.

Career Undergraduate

Academic Structure

| School/ College | Department |
|------------------------------|------------|
| College of Arts and Sciences | Chemistry |

Plan Type Major and/or Degree

Who can take this program? **Any Student at University of Miami**

Degree Type Bachelor's

Degree Name **Certified B.S. in Chemistry**

Proposed Plan Code

Plan Name Certified B.S. in Chemistry

Will there be any subcomponents within the program such as concentrations, specializations, thesis/non-thesis options, or tracks?

No

Effective Term Fall 2020

First Term Valid Fall 2020

Program Instruction Mode In Person

Where is the program offered?

| Location | Please provide the % of instruction at each location. |
|---------------------|---|
| Coral Gables Campus | 100 |

Program Length (Years) 4

Total Credits 120

Areas of Knowledge

STEM

To Be Published in the Academic Bulletin

Program Overview

The certified B.S. degree requires 47 credit hours of chemistry. This major is certified by the American Chemical Society. Variations within the program may be recommended by the Department. Transfer students must complete a minimum of half of the required major credit hours in residence in the Department. Students should make certain that math and physics prerequisites are fulfilled in a timely manner.

Program Mission Statement

Mission

Program Goals

Goals

Student Learning Outcomes

Student Learning Outcomes

Graduates will be able to demonstrate a broad understanding of fundamental chemical principles in all areas of the field.

Graduates will be adept in a broad variety of chemical instrumentation and analytical techniques.

Graduates will display effective and strong written communication skills pertaining to chemical research.

Curriculum Requirements

Curriculum Requirements

Course List

| Code | Title | Credit Hours |
|---|--|--------------|
| Core Courses | | |
| <u>CHM 121</u> | Principles of Chemistry | 4 |
| <u>CHM 113</u> | Chemistry Laboratory I | 1 |
| <u>CHM 221</u> | Organic Chemistry I | 4 |
| <u>CHM 205</u> | Organic Chemistry Laboratory I | 1 |
| <u>CHM 222</u> | Organic Chemistry II | 4 |
| <u>CHM 206</u> | Organic Chemistry Laboratory II | 2 |
| <u>CHM 214</u> | Quantitative Analytical Chemistry | 3 |
| Advanced Courses | | |
| <u>BMB 401</u> | Biochemistry for the Biomedical Sciences | 4 |
| <u>CHM 316</u> | Instrumental Analytical Chemistry | 3 |
| <u>BMB 402</u> | Principles of Experimental BMB | 2 |
| <u>CHM 320</u> | Instrumental Methods in Chemistry and Biochemistry | 2 |
| <u>CHM 360</u> | Physical Chemistry I (Lecture) | 3 |
| <u>CHM 364</u> | Physical Chemistry (Laboratory I) | 1 |
| <u>CHM 365</u> | Physical Chemistry II (Lecture) | 3 |
| <u>CHM 441</u> | Inorganic Chemistry (Lecture) | 3 |
| <u>CHM 442</u> | Inorganic Chemistry (Laboratory) | 1 |
| <u>CHM 464</u> | Physical Chemistry (Laboratory II) | 1 |
| <u>CHM 488</u> | Undergraduate Research | 2 |
| <u>CHM 490</u> | Honors Research | 1 |
| Chemistry Electives | | 9 |
| <u>CHM 317</u> | The Chemistry of Food and Taste. | |
| <u>CHM 401</u> | Environmental Chemistry | |
| | Any 500-level CHM course | |
| Math and Physics Courses | | |
| <u>MTH 161</u> | Calculus I | 4 |
| <u>MTH 162</u> | Calculus II | 4 |
| <u>PHY 221</u> | University Physics I | 3 |
| <u>PHY 222</u> | University Physics II | 3 |
| <u>PHY 223</u> | University Physics III | 3 |
| <u>PHY 224</u> | University Physics II Lab | 1 |
| <u>PHY 225</u> | University Physics III Lab | 1 |
| <u>PHY 201</u> | University Physics I for the Sciences | 4 |
| <u>PHY 202</u> | University Physics II for the Sciences | 4 |

| Code | Title | Credit Hours |
|-----------------------------|--------------------------------------|--------------|
| PHY 106 | College Physics Laboratory I | 1 |
| PHY 108 | College Physics Laboratory II | 1 |
| Additional Required Courses | | |
| ENG 105 | English Composition I | 3 |
| ENG 106 | English Composition II | 3 |
| Arts and Humanities Cognate | | 9 |
| People and Society Cognate | | 9 |
| Minor | | 15 |
| Electives | | 13-7 |
| Language | | 3-9 |
| Total Credit Hours | | 120 |

1 Variations within the above programs may be recommended by the Department. Transfer students must complete a minimum of half of the required major credit hours in residence in the Department.

2 Students should make certain that math and physics prerequisites are fulfilled in a timely manner.

~~3 Students should make certain that math and physics prerequisites are fulfilled in a timely manner.~~

Plan of Study

Suggested Plan of Study

This is a guide and is not meant to take the place of the advice of your major advisor; you should consult with them before making any changes.

Plan of Study Grid

Year One

| Fall | Credit Hours |
|--|--------------|
| CHM 121 Principles of Chemistry | 4 |
| CHM 113 Chemistry Laboratory I | 1 |
| MTH 161 Calculus I | 4 |
| ENG 105 English Composition I | 3 |
| Arts and Humanities Cognate | 3 |
| Credit Hours | 15 |
| Spring | |
| CHM 221 Organic Chemistry I | 4 |
| CHM 205 Organic Chemistry Laboratory I | 1 |
| MTH 162 Calculus II | 4 |
| ENG 106 English Composition II | 3 |
| Arts and Humanities Cognate | 3 |
| Credit Hours | 15 |

Year Two

Fall

| | |
|--|--------------|
| CHM 222 Organic Chemistry II | 4 |
| CHM 206 Organic Chemistry Laboratory II | 2 |
| PHY 221 University Physics I | 3 |
| Arts and Humanities Cognate | 3 |
| PHY 201 University Physics I for the Sciences | 4 |
| PHY 106 College Physics Laboratory I | 1 |
| Language Course | 3 |
| Credit Hours | 14 |

Spring

| | |
|--|--------------|
| PHY 222 University Physics II | 3 |
| PHY 224 University Physics II Lab | 1 |
| People and Society Course | 3 |
| CHM 214Quantitative Analytical Chemistry | 3 |
| BMB 401Biochemistry for the Biomedical Sciences | 4 |
| PHY 202 University Physics II for the Sciences | 4 |
| PHY 108 College Physics Laboratory II | 1 |
| Language Course | 3 |
| Elective | 3 |
| Credit Hours | 15 |

Year Three

Fall

| | |
|--|--------------|
| CHM 214Quantitative Analytical Chemistry | 3 |
| CHM 360 Physical Chemistry I (Lecture) | 3 |
| CHM 364 Physical Chemistry (Laboratory I) | 1 |
| PHY 223 University Physics III | 3 |
| PHY 225 University Physics III Lab | 1 |
| CHM Elective | 3 |
| Language Course | 3 |
| Arts and Humanities Cognate | 3 |
| People and Society Cognate | 3 |
| Credit Hours | 16 |

Spring

| | |
|--|--------------|
| CHM 316Instrumental Analytical Chemistry | 3 |
| CHM 365 Physical Chemistry II (Lecture) | 3 |
| CHM 464Physical Chemistry (Laboratory II) | 1 |
| CHM 488Undergraduate Research | 1 |
| CHM 320 Instrumental Methods in Chemistry and Biochemistry2 | |
| People and Society Cognate | 3 |

| | |
|---|--------------|
| Minor Course | 3 |
| Elective | 3 |
| Elective | 3 |
| Credit Hours | 17 |
| Year Four | |
| Fall | |
| BMB 401 Biochemistry for the Biomedical Sciences | 4 |
| CHM 488 Undergraduate Research | 1 |
| CHM 441 Inorganic Chemistry (Lecture) | 3 |
| CHM Elective | 3 |
| BMB 402 Principles of Experimental BMB | 2 |
| Minor Course | 3 |
| Minor Course | 3 |
| Minor Course | 3 |
| Minor Course | 3 |
| Credit Hours | 14 |
| Spring | |
| CHM 441 Inorganic Chemistry (Lecture) | 3 |
| <u>CHM 442 Inorganic Chemistry (Laboratory)</u> | 1 |
| CHM 490 Honors Research | 1 |
| CHM Elective | 3 |
| Elective | 3 |
| Elective | 4 |
| People and Society Cognate | 3 |
| Credit Hours | 14 |
| Total Credit Hours | 120 |

Rationale

Rationale

We've updated the certified BS in chemistry to meet the requirements of our governing body (the American Chemical Society). This required changing a few required courses to elective courses and changing undergraduate research courses to specific laboratory courses. We also added a program overview.

Market Demand

Relationship to Other Programs

Library Resources Available and Needed to Support the Program

Laboratory Facilities, Equipment, and Space Available and Needed to Support the Program

Other Resources Available or Needed to Support the Program

Curriculum

Program Curriculum

Upload Syllabi for Any New Courses

Proposed Schedule of Course Offerings for the First Three Years

CIP Code

Proposed CIP Code

Faculty

Program Directors

Upload CV(s)

Program Faculty

Students

Applicant Pool

Enrollment Projections

Administration

Program Administration

Comparison

Peer Comparisons

Documents

Attach Supporting Documentation

Reviewer

Comments

Patty Murphy (pxm491) (03/18/20 5:17 pm): This change does not require notification to or approval from SACSCOC.

David Chin (dchin1) (03/27/20 11:53 am): On 3/25/20 the University Curriculum Committee voted to support this proposal as submitted.