CGS Agenda Item: 12-05
Effective: Fall 2012

**EASTERN ILLINOIS UNIVERSITY**

# M e m o r a n d u m

**COLLEGE OF SCIENCES**
Old Main, Room 2118
Interim Dean 581-3328 gcobia@eiu.edu
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TO: Dr. Robert Augustine, Dean
FROM: Dr. Godson Obia, Interim Dean
DATE: February 10, 2012
RE: Executive Action Taken at the College of Sciences Curriculum Committee Meeting of February 10, 2012

The following was approved by executive action at the College of Sciences Curriculum Committee meeting ending on February 10, 2012. I ask that similar action be taken at the Council on Graduate Studies.

**REQUEST # 2:**

Requested Change: Add statement to the top of the M.S. Chemistry program description in Graduate Catalog to include information on availability of accelerated BA/MS and BS/MS program:

**Five year accelerated BA/MS and BS/MS programs are available. Detailed information is available at http://www.eiu.edu/eiuchem**

**Proposed Catalog Listing:**

### Degree Requirements

Degree requirements include those outlined for the Master's Degree by the Graduate School (see "Requirements for the Master's Degree"). All students must take a core of courses which total 24 semester hours. Student must also take elective courses which total 6 semester hours. With permission of the graduate coordinator, one or more elective courses may be taken in departments outside Chemistry.

**Five year accelerated BA/MS and BS/MS programs are available. Detailed information is available at http://www.eiu.edu/eiuchem**

**Current Catalog Listing:**

### Degree Requirements

Degree requirements include those outlined for the Master's Degree by the Graduate School (see "Requirements for the Master's Degree"). All students must take a core of courses which total 24 semester hours. Student must also take elective courses which total 6 semester hours. With permission of the graduate coordinator, one or more elective courses may be taken in departments outside Chemistry.

The following courses are required of all students:

Total credits: 24

CHM 5000 - Graduate Seminar I. Credits: 0
CHM 5001 - Graduate Seminar II. Credits: 1
CHM 5002 - Introduction to Graduate Chemical Research. Credits: 1

CHM 5003 - Critical Reading of Chemical Literature. Credits: 1
CHM 5180 - Bioanalytical Problem Solving Credits: 3
CHM 5210 - Bonding and Reactivity Credits: 3
CHM 5360 - Supramolecular Chemistry and Nanotechnology. Credits: 3
CHM 5420 - Modern Organic Chemistry Credits: 3
CHM 5890 - Graduate Research. Credits: 1 to 6
CHM 5950 - Thesis. Credits: 3
Elective Courses

Students must take a total of 6 credits of elective courses chosen from the following list of Chemistry courses or, with permission of the graduate coordinator, courses chosen from other disciplines.

Courses in Chemistry:

CHM 4750 - Environmental Chemistry. Credits: 3
CHM 4770 - Molecular Spectroscopy. Credits: 2
CHM 4790 - Medicinal Chemistry. Credits: 3
CHM 4800 - Selected Topics in Chemistry. Credits: 1 to 3
CHM 4860 - Advanced Biochemistry. Credits: 3
CHM 4900 - Inorganic Chemistry II. Credits: 3
CHM 4915 - Advanced Laboratory Credits: 3
CHM 5200 - Chemical Thermodynamics. Credits: 3
CHM 5250 - Special Topics. Credits: 3
CHM 5300 - Molecular Spectroscopy. Credits: 3
CHM 5350 - Organometallic Chemistry. Credits: 3
CHM 5410 - Organic Mechanisms and Synthesis. Credits: 3
CHM 5460 - Advanced Biochemistry. Credits: 3

**Graduate Assistantships**
Information on graduate assistantships may be obtained by contacting the Coordinator of Graduate Studies or Chair, Chemistry, 3154 Physical Science Building, EIU.

**Rationale for change: A plan for a BA/MS degree has been approved by the department that allows (with advanced planning) both degrees to be completed within five years.**

**Effective Year/Term: FA 2012**

## Sample of where the link shown above would lead--

### Overview of Accelerated Chemistry Masters Programs

The accelerated Masters programs (also known as BS/MS or BA/MS) are designed for motivated students who wish to earn both their Bachelor's and Master's degrees within a five-year period. Students enrolled in B.S. in Chemistry (Biochemistry or Chemistry Concentrations) or B.A. in Chemistry with a GPA of 2.75 are eligible to apply for the accelerated Master's program. The curriculum follows the normal undergraduate degree for three years, but includes three reserved graduate level courses during the fourth year that will be applied to the subsequent M.S. program. (These graduate courses cannot be included in the student's undergraduate degree program.) The fifth year includes the remaining graduate coursework as well as the writing and defense of the thesis. The student is expected to complete research for the thesis during the summer between the fourth and fifth years and during the fifth year. This accelerated program is made possible by completing the graduate coursework in the senior year and by enrollment in undergraduate research for two semesters in the senior year during which preliminary work for the Masters research can be accomplished.

Students who are interested in this unique opportunity should meet with the Chemistry graduate coordinator during their junior year to plan for the course work and research. In the spring semester of their junior year, students should have arranged to start undergraduate research (at the latest) by the fall of their senior year and should submit a letter to the graduate coordinator from their research advisor agreeing to act as advisor for both the undergraduate and graduate research. Students must apply to the Graduate School during their fourth year for official admission to the M.S. program immediately following completion of their undergraduate degree requirements.

The Master's of Science degree requires 30 credits of graduate work with 20 credits in courses at the 5000 level. Up to 9 hours of graduate credit earned as an undergraduate and not applied toward the undergraduate degree can be applied for credit toward a master's degree. (Prior approval from the Graduate School must be obtained.) Required courses for the M.S. degree are listed in the graduate catalog.

The following three undergraduate degrees are eligible to be paired with the accelerated M. S. program: B. S. in Chemistry (both Chemistry and Biochemistry concentrations) and B.A. in Chemistry. Links to possible 5-year plans of study for each of these three undergraduate degrees follow.

Department of Chemistry
EASTERN ILLINOIS UNIVERSITY
Charleston, Illinois 61920

**SUGGESTED ACCELERATED FIVE-YEAR PLAN OF STUDY FOR THE CHEMISTRY MAJOR**
**B.S.(Chem Concentration)/M.S. in Chemistry**

**FRESHMAN YEAR**

| *Fall Semester (16 SH)* | | SH | *Spring Semester (16 SH)* | | SH |
|---|---|---|---|---|---|
| CHM 1310G | General Chemistry I | 3 | CHM 1410 | General Chemistry II | 3 |
| CHM 1315G | General Chemistry Laboratory I | 1 | CHM 1415 | General Chemistry Laboratory II | 1 |
| ENG 1001G | Composition and Language | 3 | ENG 1002C | Composition and Literature | 3 |
| PHY 1351G | General Physics I | 3 | PHY 1361 | General Physics II | 3 |
| PHY 1352G | General Physics I Laboratory | 1 | PHY 1362 | General Physics II Laboratory | 1 |
| MAT 1441G | Calculus and Analytic Geometry I | 5 | MAT 2442 | Calculus and Analytic Geometry | 5 |

**SOPHOMORE YEAR**

| *Fall Semester (17 SH)* | | SH | *Spring Semester (16 SH)* | | SH |
|---|---|---|---|---|---|
| CHM 2440 | Organic Chemistry I | 3 | * CHM 2310 | Inorganic Chemistry I | 3 |
| CHM 2445 | Organic Chemistry Laboratory I | 1 | CHM 2840 | Organic Chemistry II | 3 |
| CHM 2730 | Quantitative Analysis | 3 | CHM 2845 | Organic Chemistry Laboratory II | 1 |
| * CHM 3500 | Introduction to Chemical Research | 1 | S/B Gen Ed/ | Diversity | 3 |
| CMN 1310G | Intro to Speech Communication | 3 | S/B Gen Ed | | 3 |
| S/B Gen Ed | | 3 | HUM Gen E | | 3 |
| Bio Gen Ed | | 3 | | | |

**JUNIOR YEAR**

| *Fall Semester (16 SH)* | | SH | *Spring Semester (15 SH)* | | SH |
|---|---|---|---|---|---|
| CHM 3000 | Chemistry Seminar I | 0 | CHM 3001 | Chemistry Seminar II | 1 |
| * CHM 3780 | Instrumental Analysis | 3 | * CHM 3920 | Quantum Chemistry | 3 |
| * CHM 3450 | Biochemistry I | 3 | * CHM 3915 | Physical Chemistry Lab | 2 |
| * CHM 3910 | Chemical Thermodynamics & Kinet | 3 | H/FA elective (upper division) | | 3 |
| FA elective (upper division) | | 3 | ^# Electives | | 6 |
| ^# Electives | | 4 | | | |

**SENIOR YEAR**

| *Fall Semester (UG 13 SH; G 3SH)* | | SH | *Spring Semester (UG 11 SH; G 6SH)* | | SH |
|---|---|---|---|---|---|
| CHM 4000 | Chemistry seminar III | 0 | CHM 4001 | Chemistry Seminar IV | 1 |
| EIU 41xxG | Senior Seminar | 3 | ^# Electives | | 6 |
| CHM 4900 | Inorganic Chemistry II | 3 | CHM 4400 | Undergrad research (UG elective | 1 |
| CHM 4400 | Undergrad research (UG elective) | 1 | CHM 4915 | Advanced Laboratory | 3 |
| ^# Electives | | 6 | CHM >4750 | Graduate elective | 3 |
| CHM 5210 | Bonding and Reactivity | 3 | CHM 5189 | Bioanalytical | 3 |
| or CHM 5420 | Modern Organic | | or CHM 5360 | Supramolecular Chemistry | |

**GRADUATE YEAR**

***Summer #1 ( 3 SH )***

| | | |
|---|---|---|
| CHM 5890 | | 3 |

| *Fall Semester ( 9 SH )* | | SH | *Spring Semester ( 9 SH )* | | SH |
|---|---|---|---|---|---|
| CHM >4750 | Elective | 3 | CHM 5001 | Graduate seminar II | 1 |
| * CHM 5003 | Reading Chemical Literature | 1 | CHM 5950 | Thesis | 3 |
| CHM 5210 | Bonding and Reactivity | 3 | CHM 5189 | Bioanalytical | 3 |
| or CHM 5420 | Modern Organic | | or CHM 5360 | Supramolecular Chemistry | |
| CHM 5890 | Research | 1 | CHM 5890 | Research | 2 |
| * CHM 5002 | Intro to Research | 1 | | | |
| CHM 5000 | Graduate seminar I | 0 | | | |

***Summer #2 (if necessary)***

| | | |
|---|---|---|
| CHM 5890 | | 3 |

**NOTES**

* Only offered in semester listed

UNDERGRADUATE NOTES

Transfer students should complete Math and Physics requirements during the two years before transferring.

Minimum hours for graduation: 120

Transfer students should complete Math and Physics requirements during the two years before transferring.

^ Undergraduates must have 40 hours of coursework numbered 3000 and above

\# Five semester hours of Chemistry electives needed, including the two hours of CHM 4400.

GRADUATE NOTES

Limit of 9 hours Thesis (5950) and Research (5890)

Graduate students must have 30 hours total with 20 hours at the 5000 level

With advanced permission, nine hours of courses numbered 4750 through 5499 can be carried over from senior year to be counted for graduate credit

**SUGGESTED ACCELERATED FIVE-YEAR PLAN OF STUDY FOR THE CHEMISTRY MAJOR**
**B.S.(Biochem Concentration)/M.S. in Chemistry**

**FRESHMAN YEAR**

| | ***Fall Semester (16 SH)*** | SH | | ***Spring Semester (16 SH)*** | SH |
|---|---|---|---|---|---|
| | CHM 1310G General Chemistry I | 3 | | CHM 1410 General Chemistry II | 3 |
| | CHM 1315G General Chemistry Laboratory I | 1 | | CHM 1415 General Chemistry Laboratory II | 1 |
| | ENG 1001G Composition and Language | 3 | | ENG 1002G Composition and Literature | 3 |
| | PHY 1351G General Physics I | 3 | | PHY 1361 General Physics II | 3 |
| | PHY 1352G General Physics I Laboratory | 1 | | PHY 1362 General Physics II Laboratory | 1 |
| | MAT 1441G Calculus and Analytic Geometry I | 5 | | MAT 2442 Calculus and Analytic Geometry I | 5 |

**SOPHOMORE YEAR**

| | ***Fall Semester (18 SH)*** | SH | | ***Spring Semester (16 SH)*** | SH |
|---|---|---|---|---|---|
| | CHM 2440 Organic Chemistry I | 3 | * | CHM 2310 Inorganic Chemistry I | 3 |
| | CHM 2445 Organic Chemistry Laboratory I | 1 | | CHM 2840 Organic Chemistry II | 3 |
| | CHM 2730 Quantitative Analysis | 3 | | CHM 2845 Organic Chemistry Laboratory II | 1 |
| * | CHM 3500 Introduction to Chemical Research | 1 | | S/B Gen Ed/Diversity | 3 |
| | BIO 1100 General Biology | 4 | | S/B Gen Ed | 3 |
| | CMN 1310G Intro to Speech Communication | 3 | | HUM Gen Ed | 3 |
| | S/B Gen Ed | 3 | | | |

**JUNIOR YEAR**

| | ***Fall Semester (15 SH)*** | SH | | ***Spring Semester (18 SH)*** | SH |
|---|---|---|---|---|---|
| | CHM 3000 Chemistry Seminar I | 0 | | CHM 3001 Chemistry Seminar II | 1 |
| * | CHM 3780 Instrumental Analysis | 3 | * | CHM 3920 Quantum Chemistry | 3 |
| * | CHM 3450 Biochemistry I | 3 | * | CHM 3915 Physical Chemistry Lab | 2 |
| * | CHM 3910 Chemical Thermodynamics & Kinet | 3 | | H/FA elective( upper division) | 3 |
| | FA elective (upper division) | 3 | * | CHM 3455 Biochem Lab | 2 |
| ^# | Elective | 3 | * | CHM 3460 Biochem II | 3 |
| | | | | BIO 3200 or 3300 Micro or genetics | 4 |

**SENIOR YEAR**

| | ***Fall Semester (UG 13 SH; G 3 SH )*** | SH | | ***Spring Semester (UG 8SH; G 6 SH )*** | SH |
|---|---|---|---|---|---|
| | CHM 4000 Chemistry seminar III | 0 | | CHM 4001 Chemistry Seminar IV | 1 |
| | EIU 41xxG Senior Seminar | 3 | # | CHM 4400 Undergrad research (UG CHM el | 1 |
| | CHM 4860 Biochem III | 3 | ^# | Electives | 6 |
| # | CHM 4400 Undergrad research (UG CHM elec | 1 | | CHM >4750 Graduate elective | 3 |
| ^# | Electives | 3 | or | CHM 5180 Bioanalytical | 3 |
| ! | BIO Gen Ed | 3 | | CHM 5360 Supramolecular Chemistry | |
| or | CHM 5210 Bonding and Reactivity | 3 | | | |
| | CHM 5420 Modern Organic | | | | |

**GRADUATE YEAR** SH

***Summer #1 ( 3 SH )***

CHM 5890 3

| | ***Fall Semester ( 9 SH )*** | SH | | ***Spring Semester ( 9 SH )*** | SH |
|---|---|---|---|---|---|
| | CHM >4750 Elective | 3 | | CHM 5001 Graduate seminar II | 1 |
| * | CHM 5003 Reading Chemical Literature | 1 | | CHM 5950 Thesis | 3 |
| or | CHM 5210 Bonding and Reactivity<br>CHM 5420 Modern Organic | 3 | or | CHM 5180 Bioanalytical<br>CHM 5360 Supramolecular Chemistry | 3 |
| | CHM 5890 Research | 1 | | CHM 5890 Research | 2 |
| * | CHM 5002 Intro to Research | 1 | | | |
| | CHM 5000 Graduate seminar I | 0 | | | |

***Summer #2 (if necessary)***

CHM 5890 3

**NOTES**

* Only offered in semester listed

UNDERGRADUATE DEGREE NOTES:

Transfer students should complete Math and Physics requirements during the two years before transferring.

Minimum hours for graduation: 120

^ Undergraduate must have 40 hours of coursework numbered 3000 and above

\# Five semester hours of Chemistry electives needed, including the two hours of CHM 4400.

! If a waiver to count BIO 1100 as a gen ed course is obtained, an elective may be taken here.

GRADUATE DEGREE NOTES:

Limit of 9 hours Thesis (5950) and Research (5890)

Graduate students must have 30 hours total with 20 hours at the 5000 level

With advanced permission, nine hours of courses numbered 4750 through 5499 can be carried over from senior year to be counted for graduate

# UGGESTED ACCELERATED FIVE-YEAR PLAN OF STUDY FOR THE CHEMISTRY MAJO
## B.A./M.S. in Chemistry

### FRESHMAN YEAR

| | *Fall Semester (16 SH)* | | | SH | | *Spring Semester (16 SH)* | | | SH |
|---|---|---|---|---|---|---|---|---|---|
| | CHM | 1310G | General Chemistry I | 3 | | CHM | 1410 | General Chemistry II | 3 |
| | CHM | 1315G | General Chemistry Laboratory I | 1 | | CHM | 1415 | General Chemistry Laboratory II | 1 |
| | ENG | 1001G | Composition and Language | 3 | | ENG | 1002G | Composition and Literature | 3 |
| $ | PHY | 1351G | General Physics I | 3 | $ | PHY | 1361 | General Physics II | 3 |
| $ | PHY | 1352G | General Physics I Laboratory | 1 | $ | PHY | 1362 | General Physics II Laboratory | 1 |
| | MAT | 1441G | Calculus and Analytic Geometry I | 5 | | MAT | 2442 | Calculus and Analytic Geometry II | 5 |

### SOPHOMORE YEAR

| | *Fall Semester (17 SH)* | | | SH | | *Spring Semester (16 SH)* | | | SH |
|---|---|---|---|---|---|---|---|---|---|
| | CHM | 2440 | Organic Chemistry I | 3 | * | CHM | 2310 | Inorganic Chemistry I | 3 |
| | CHM | 2445 | Organic Chemistry Laboratory I | 1 | | CHM | 2840 | Organic Chemistry II | 3 |
| | CHM | 2730 | Quantitative Analysis | 3 | | CHM | 2845 | Organic Chemistry Laboratory II | 1 |
| * | CHM | 3500 | Introduction to Chemical Research | 1 | | S/B Gen Ed/ Diversity | | | 3 |
| | CMN | 1310G | Intro to Speech Communication | 3 | | S/B Gen Ed | | | 3 |
| | S/B Gen Ed | | | 3 | | FA Gen Ed | | | 3 |
| | BIO Gen Ed | | | 3 | | | | | |

### JUNIOR YEAR

| | *Fall Semester (15 SH)* | | | SH | | *Spring Semester (16 SH)* | | | SH |
|---|---|---|---|---|---|---|---|---|---|
| | CHM | 3000 | Chemistry Seminar I | 0 | | CHM | 3001 | Chemistry Seminar II | 1 |
| #* | CHM | 3450 | Biochemistry I | 3 | #* | CHM | 3920 | Quantum Chemistry | 3 |
| #* | CHM | 3910 | Chemical Thermodyn. & Kinetics | 3 | | or CHM elective (UG CHM elective) | | | |
| | HUM/FA Gen Ed (upper division) | | | 3 | | HUM/FA Gen Ed (upper division) | | | 3 |
| #* | CHM | 3780 | Instrumental (UG CHM elective) | 3 | ^# | Electives | | | 9 |
| ^# | Electives | | | 3 | | | | | |

### SENIOR YEAR

| | *Fall Semester (UG 11-14 SH; G 3-6 SH)* | | | SH | | *Spring Semester (UG 10-13; G 3-6 SH)* | | | SH |
|---|---|---|---|---|---|---|---|---|---|
| ^# | Electives | | | 10 | ^# | Electives | | | 9 |
| # | CHM | 4400 | Undergrad research (UG CHM electi | 1 | # | CHM | 4400 | Undergrad research (UG CHM elect | 1 |
| or | EIU | 41xxG | Senior Seminar | 3 | or | EIU | 41xxG | Senior Seminar | 3 |
| | CHM | >4750 | Graduate elective | 3 | | CHM | >4750 | Graduate elective | 3 |
| or | CHM | 5210 | Bonding and Reactivity | 3 | or | CHM | 5180 | Bioanalytical | 3 |
| | CHM | 5420 | Modern Organic | | | CHM | 5360 | Supramolecular Chemistry | |

### GRADUATE YEAR

***Summer (3 SH)***

| | | | | |
|---|---|---|---|---|
| | CHM | 5890 | Graduate research | 3 |

| | *Fall Semester (9 SH)* | | | SH | | *Spring Semester (9 SH)* | | | SH |
|---|---|---|---|---|---|---|---|---|---|
| | CHM | 5000 | Graduate seminar | 0 | | CHM | 5001 | Graduate seminar | 1 |
| | CHM | 5003 | Chem lit | 1 | | CHM | 5890 | Graduate research | 2 |
| | CHM | 5002 | Intro to grad research | 1 | | CHM | 5950 | Thesis | 3 |
| | CHM | 5890 | Grad research | 1 | or | CHM | 5180 | Bioanalytical | 3 |
| | CHM | >4750 | Graduate elective | 3 | | CHM | 5360 | Supramolecular Chemistry | |
| or | CHM | 5210 | Bonding and Reactivity | 3 | | | | | |
| | CHM | 5420 | Modern Organic | | | | | | |

***SUMMER #2 (if necessary)***

| | | | | |
|---|---|---|---|---|
| | CHM | 5890 | | 3 |

### Notes

***** Only offered in semester listed

UNDERGRADUATE DEGREE NOTES:

Transfer students are reminded that they will need 56 hours earned at a senior institution (4-year school) and 42 hours earned in residence at EIU to complete their BA.

Minimum hours for graduation: 120

^ Undergraduates **must** have 40 hours of coursework numbered 3000 and above.

**#** Minimum of **six (6)** semester hours of CHM electives required. The following may not be used as electives: CHM 1040G, A maximum of three (3) semester hours of CHM 4400 may be used to satisfy this requirement.

For the MS degree, CHM electives must include CHM3780 and two semester hours of CHM4400.

For the MS degree, CHM 3450 and CHM 3910 are required and CHM 3920 is recommended.

**$** Students who have completed college-level algebra-based physics courses (*e.g.* PHY 1151G, 1152G, 1161, 1162) should consult the dept. chair.

GRADUATE DEGREE NOTES:

Limit of 9 hours Thesis (5950) and Research (5890)

Graduate must have 30 hours total and 20 hours at the 5000 level

With advanced permission, nine hours of courses numbered 4750 through 5499 can be [redacted] om senior year to be counted for graduate credit