

COLLEGE OF ARTS AND SCIENCES  
COURSE AND CURRICULUM CHANGES

REVISED  
approved at the College faculty meeting

November 1, 2012  
Leasure 013

4:00 p.m.

Undergraduate/Graduate  
Expedited & Non-Expedited

Contact Person: Joseph Aistrup  
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Units outside the college, which may be directly  
impacted by these changes are: Veterinary Medicine;  
Food Science

Please provide the sponsors of a proposal change with any  
information regarding fiscal or programmatic impact on your  
department, program or students

# EXPEDITED COURSE PROPOSALS

## Courses Numbered 000-599

### **Political Science**

FROM: POLSC 111 – Introduction to Political Science, Honors. (4) I, II, S. Introduction to politics, public policy, and governmental processes. Distribution and use of political power, political thought, public opinion, groups, parties, institutions, public law, careers in politics, and related topics. Pr.: Membership in arts and sciences honors program. K-State 8: ~~Empirical and Quantitative Reasoning~~; Social Sciences.

TO: POLSC 111 - Introduction to Political Science, Honors. (4) I, II, S. Introduction to politics, public policy, and governmental processes. Distribution and use of political power, political thought, public opinion, groups, parties, institutions, public law, careers in politics, and related topics. Pr.: Membership in arts and sciences honors program. K-State 8: Global Issues and Perspectives; Social Sciences.

RATIONALE: Entire university asked to revise K-State 8 content areas.

EFFECTIVE DATE: Fall 2013

FROM: POLSC 135 – Introduction to Comparative Politics. (3) I, II. Comparative analysis of politics in both “developed” and “developing” countries. Though some attention will be given to abstract and theoretical concepts, the emphasis will be on the actual political process in the countries selected for study. K-State 8: ~~Empirical and Quantitative Reasoning~~; Social Sciences.

TO: POLSC 135 – Introduction to Comparative Politics. (3) I, II. Comparative analysis of politics in both “developed” and “developing” countries. Though some attention will be given to abstract and theoretical concepts, the emphasis will be on the actual political process in the countries selected for study. K-State 8: Global Issues and Perspectives; Social Sciences.

RATIONALE: Entire university asked to revise K-State 8 content areas.

EFFECTIVE DATE: Fall 2013

FROM: POLSC 366 – Practical Politics. (3) I, II. Strategies and techniques of running for office, organizing a campaign, mobilizing community resources, direct

action lobbying, and related practical aspects of local level citizen politics. K-State 8: Social Sciences.

TO: POLSC 366 – Practical Politics. (3) I, II. Strategies and techniques of running for office, organizing a campaign, mobilizing community resources, direct action lobbying, and related practical aspects of local level citizen politics. K-State 8: Human Diversity within the US; Social Sciences.

RATIONALE: Entire university asked to revise K-State 8 content areas.

EFFECTIVE DATE: Fall 2013

## EXPEDITED COURSE PROPOSALS Courses Numbered 600-999

### **Political Science**

FROM: POLSC 604 – Interest Groups and Public Opinion. (3) II. Group theory and politics. Structure, internal politics, and techniques of interest groups and their impact on public policy. Formation and measurement of public opinion. Pr.: POLSC 110 or ~~325~~. K-State-8: ~~Historical Perspectives~~; Social Sciences.

TO: POLSC 604 – Interest Groups and Public Opinion. (3) II. Group theory and politics. Structure, internal politics, and techniques of interest groups and their impact on public policy. Formation and measurement of public opinion. Pr.: POLSC 110 or POLSC 115. K-State 8: Human Diversity within the US; Social Sciences.

RATIONALE: Entire university asked to revise K-State 8 content areas.

EFFECTIVE DATE: Fall 2013

FROM: POLSC 620 – State and Local Government. (3) II. The United States system of federalism with emphasis on a comparative analysis of the government and politics of the fifty states and their subdivisions. Pr.: POLSC 110 or ~~325~~. K-State 8: ~~Human Diversity within the US~~; Social Sciences.

TO: POLSC 620 – State and Local Government. (3) II. The United States system of federalism with emphasis on a comparative analysis of the government

and politics of the fifty states and their subdivisions. Pr.: POLSC 110 or POLSC 115. K-State 8: Historical Perspectives; Social Sciences.

RATIONALE: Entire university asked to revise K-State 8 content areas.

EFFECTIVE DATE: Fall 2013

# NON-EXPEDITED COURSE PROPOSALS

## Courses Numbered 000-599

### **Biochemistry**

**ADD:** BIOCH 571 – Medical Biochemistry. (3) I. Covers medically related concepts, structures, pathways and mechanisms in biochemistry. Addresses the fundamental biochemistry behind veterinary, medical or dental topics and issues. Instructs in the fundamental principles of protein structure and function, enzymology, carbohydrate and lipid metabolism, hormones, biochemical energetics, membranes, nucleic acid and protein metabolism, information transfer and the genetic code, genomic and proteomic analyses, the interdependence of biochemical pathways, pathogenesis and additional new topics. Serves as preparatory for the MCAT/DAT/GRE examinations.

**RATIONALE:** The proposed advanced undergraduate course will consider fundamental biochemical topics in the context of human and veterinary medicine. This class is an integral component of the proposed new BA degree track in Medical Biochemistry. The overall curriculum will provide a comprehensive framework for students who require pre-medical, pre-veterinary, pre-dental and pre-nursing training prior to pursuing those advanced degrees. The proposed class will be administered in the Fall term of the junior year, which immediately precedes MCAT, DAT, and GRE testing in the Spring term of the junior year. Thus it will also serve as preparation for these elements of pre-professional training.

**IMPACT:** The class is potentially valuable to students in many programs, including Biology, Veterinary Medicine, Chemistry and Food Sciences, as preparation for future medical training or graduate study. Aside from standard background in Math, Physics and Chemistry, other prerequisites for the course originate from the Biochemistry department, so we expect little impact on other departments. At present, no equivalent classes exist at KSU

**EFFECTIVE DATE:** Fall 2013

## Sociology, Anthropology, and Social Work

FROM: ~~SOCWK 330 – Introduction to Social Work Research.~~ (3) II. First of two research courses. ~~Emphasis on social work research methodology.~~ Examines the ethics and processes of research. Social work majors only. ~~Recommend concurrent enrollment in STAT 325.~~ Pr.: SOCWK 100. K-State 8: Empirical and Quantitative Reasoning; ~~Ethical Reasoning and Responsibility.~~

TO: SOCWK 330 – Social Work Research Methods and Analysis I. (3) II. First of two research methods courses. Emphasis on social work research methodology and statistical analysis of small sample data sets. Content examines the ethics and processes of research. Social work majors only. Pr.: SOCWK 100 and MATH 100. K-State 8: Empirical and Quantitative Reasoning.

RATIONALE: The name and description change make the course focus and content more clear, particularly to the graduate social work education programs that evaluate undergraduate social work curriculum content to which our graduates have been exposed. The prerequisite of STAT 325 is eliminated for this course because MATH 100 is now required for SOCWK 330 and SOCWK has added content on small sample statistics (non-parametric) that are more relevant to social work research applications in practice.

IMPACT: None is anticipated. On February 17, 2012, in a telephone conversation with Jim Neill, Statistics Department Head, I advised him of our intent to drop STAT 325 as a prerequisite for this class. He indicated that was not a problem, and, if needed, he would write a letter to that effect.

EFFECTIVE DATE: Fall 2013

FROM: ~~SOCWK 530 – Seminar in Applied Social Work Research.~~ (3) I. Second of two research methods courses. Emphasis on designing and conducting social work research projects appropriate for baccalaureate social work practice. Attention given to research strategies for the evaluation of social work practice. Social work majors only. Pr.: SOCWK 330 ~~and STAT 325.~~ K-State 8: ~~None.~~

TO: SOCWK 530 – Social Work Research Methods and Analysis II. (3) I. Second of two research methods courses. Emphasis on designing and conducting social work research projects appropriate for baccalaureate social work practice. Attention given to research strategies for the evaluation of social work practice. Social work majors only. Pr.: SOCWK 330. K-State 8: Empirical and Quantitative Reasoning.

**RATIONALE:** The name and description change make the course focus and content more clear, particularly to graduate social work education programs that evaluate undergraduate social work curriculum content to which our graduates have been exposed. The prerequisite of STAT 325 is eliminated for this course because MATH 100 is now required for SOCWK 330 and SOCWK has added content on small sample statistics (non-parametric) that are more relevant to social work research applications in practice.

**IMPACT:** None is anticipated. On February 17, 2012, in a telephone conversation with Jim Neill, Statistics Department Head, I advised him of our intent to drop STAT 325 as a prerequisite for this class. He indicated that was not a problem, and, if needed, he would write a letter to that effect.

**EFFECTIVE DATE:** Fall 2013

# NON-EXPEDITED COURSE PROPOSALS

## Courses Numbered 600-999

### Biochemistry

FROM: ~~BIOCH 590 – Physical Studies of Biomacromolecules. (3) II. An overview of concepts and techniques of physical science used in studying the structure and function of biomacromolecules such as proteins and DNA. Applications include classical equilibrium thermodynamics and spectroscopic methods including mass spectrometry, circular dichroism (CD), and nuclear magnetic resonance (NMR). Pr.: CHM 500, MATH 221, and PHYS 114.~~

**K-State 8** - Empirical and Quantitative Reasoning; Natural and Physical Sciences

TO: BIOCH 775 – Molecular Biophysics. (3) II. Survey if the biophysical methods most frequently encountered in biochemistry and related disciplines. It summarized concepts and techniques of physical science used in studying the structure and function of biomacromolecules such as proteins and DNA. Applications include classical equilibrium thermodynamics and analytical methods like mass spectrometry and circular dichroism (CD), fluorescence, EPR and nuclear magnetic resonance (NMR) spectroscopy. The class emphasizes the underlying principles and techniques used in determining the molecular weight and shape of biopolymers, biochemical mechanisms of action, and observation of conformational changes in macromolecules. Pr.: CHM 350/351, MATH 221, and PHYS 114, BIOCH 755, 756, 765. K-State 8 - Empirical and Quantitative Reasoning; Natural and Physical Sciences .

RATIONALE: The new class (Molecular Biophysics; see attach description – 3 credits) replaces, with significant changes BIOCH 590 (Physical Studies of Biomacromolecules – 3 credits). This proposed name change does not affect its content. We desire the new name for consistency with the anticipated change in our departmental title to “Biochemistry and Molecular Biophysics.” The proposed BIOCH 775 will become one of the centerpiece courses in our BS degree program. The proposed course number (775) is consistent with the series BIOCH 755/765/775, which are required (in this order) in the BS curriculum.

IMPACT: None

EFFECTIVE DATE: Fall 2013

## **Sociology, Anthropology, and Social Work**

FROM: ~~SOCIO 744~~ – Social Gerontology: An Introduction to the Sociology of Aging. (3) II. Analysis of the phenomenon of human aging in its individual, social, and cultural aspects with special attention to the problems of aging populations in Western societies. Pr.: SOCIO 211

TO: SOCIO 544 - Social Gerontology: An Introduction to the Sociology of Aging. (3) II. Analysis of the phenomenon of human aging in its individual, social, and cultural aspects with special attention to the problems of aging populations in Western societies. Pr.: SOCIO 211

RATIONALE: Over the past years an increasing demand emerged for an upper level undergraduate course on social gerontology or the sociology of aging. An undergraduate version of SOCIO 744 was taught before as a 500 level topic class. At the same time, demand has not been present for the graduate version of this class. Therefore, we ask to change the number of the course from 744 to 544. Although technically undergraduates can take 700 level classes, in practice most of them would not do so. Socio 744 is currently scheduled for Spring 2013, an expedited process is requested so that this change could take place by next semester. The number is the only element we ask to be changed; everything else in the catalog would remain unchanged.

IMPACT: None

EFFECTIVE DATE: Spring 2013

# CURRICULUM CHANGES

## Undergraduate (Non-Expedited)

### Art

BA in Art

FROM:

~~The BA degree in Art (studio track) consists of the general education courses outlined under the humanities curriculum; the current 21 studio credits in the core; plus ART 105 for one credit and a minimum of 9 credit hours in one Art area as well as 6 credit hours in another Art area which are 300-level or above. Fourteen (14) credit hours will be free electives which could be courses for a minor in another department.~~

~~Area of study include: painting, printmaking, ceramics, sculpture, drawing, art history, metalsmithing and jewelry, graphic design, digital arts or photography.~~

~~Bachelor's degree requirements  
General requirements for undergraduate major~~

~~Students majoring in Art must earn a total of 124 credit hours for graduation. The BA program is obtained by following the curriculum of the College of Arts and Sciences.~~

~~Art history (12 credit hours)~~

~~ART 195 – Survey of Art History I Credits: (3)  
ART 196 – Survey of Art History II Credits: (3)~~

~~Choose two from the following:~~

~~ART 545 – Twentieth Century Art History I Credits: (3)  
ART 550 – Twentieth Century Art History II Credits: (3)  
ART 602 – Twentieth Century Art History III Credits: (3)  
ART 603 – Twentieth Century Art History IV Credits: (3)~~

~~Foundation core (21 credit hours)~~

~~\*Two-dimensional course choice Credits: (3)~~

~~\*\*Three-dimensional course choice Credits: (3)~~

~~ART 100- 2-Dimensional Design Credits: (3)  
ART 190 – Drawing I Credits: (3)  
ART 200 – 3-Dimensional Design Credits: (3)~~

TO:

The BA degree in Art consists of two concentrations, Studio Art and Art History. Both concentrations require the general education courses outlined under the humanities curriculum in the College of Arts and Sciences. Students majoring in Art must earn a total of 124 credit hours for graduation.

BA in Studio Art Concentration:  
Required Courses

22 credits of the Core Foundation courses: (ART 100, 105, 200, 190, 210, 225, one 2D\* core elective and one 3D\*\* core elective.

9 credits in one Studio Area and 6 credits in another area (6 of these credits must be 300 level or above).

Areas of study include: ceramics, digital arts, drawing, graphic design, metalsmithing and jewelry, painting, photography, printmaking or sculpture.

12 credits of Art History\*\*\*

Bachelor's degree requirements  
General requirements for undergraduate major

BA in Art History Concentration:  
Required Courses

12 credits of Core Foundation courses (ART 100, 200, 190, and one core elective from 2D\* or 3D\*\* list below)

12 credits of Art History\*\*\*

24 credits of Art History Concentration classes

12-14 credits of Tools and Related courses: (History, Literature, Architecture, Philosophy, Women's Studies or Studio Courses).

Bachelor's degree requirements  
General requirements for undergraduate major

Notes: \*Two-dimensional core electives: ART 220 – Watermedia, ART 235- Printmaking I, ART 245 – Oil Painting, ART 290 – Type and Design, ART 295 – Photo I

<p>ART 210 – Drawing II Credits: (3)  ART 225 – Figure Drawing I Credits: (3)</p> <p>Art electives (15 credit hours)  Major concentration (15 credit hours)</p> <p>The bachelor of arts degree requires a minimum of 49 semester credit hours in art.</p> <p>Notes  <del>*Two-dimensional courses: Visual Communication Foundation, Oil Painting I, Photography in Art, Printmaking I, Water Media I.</del></p> <p><del>**Three-dimensional courses: Ceramics I, Metalsmith and Jewelry, Sculpture I.</del></p>	<p><u>*Three-dimensional core electives: ART 230 – Sculpture I, ART 265 – Ceramics I, ART 270 – Metals &amp; Jewel</u></p> <p><u>*** Art History requirements for the BA</u></p> <p>ART 195 – Survey of Art History I Credits: (3)  ART 196 – Survey of Art History II Credits: (3)</p> <p>Choose two from the following:</p> <p>ART 545 – Twentieth Century Art History I Credits: (3)  ART 550 – Twentieth Century Art History II Credits: (3)  ART 602 – Twentieth Century Art History III Credits: (3)  ART 603 – Twentieth Century Art History IV Credits: (3)</p>
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**RATIONALE:** The BA in Art (with concentrations in Art History and Studio Art) have already been approved by Course and Curriculum and have been in practice for a number of years. But the catalog description is not clear. This is an effort to clarify in the catalog description what the two concentrations within the degree are.

**IMPACT:** None

**EFFECTIVE DATE:** Spring 2013

## Biochemistry

### BA in Biochemistry

**FROM:**

Biochemistry seeks to understand the molecular events of life processes. It applies chemical and physical techniques to elucidate the structure and organization of molecules, particularly macromolecules that are responsible for the structural organization as well as operation and control of all cellular processes. The emerging knowledge has broad importance and consequences for all areas of the life sciences.

**Bachelor's degree requirements**

**TO:**

Biochemistry seeks to understand the molecular events of life processes. It applies chemical and physical techniques to elucidate the structure and organization of molecules, particularly macromolecules that are responsible for the structural organization as well as operation and control of all cellular processes. The emerging knowledge has broad importance and consequences for all areas of the life sciences.

**Bachelor's degree requirements**

<p>General requirements for undergraduate major:  <del>A total of 124 credit hours are required for graduation.</del> The BA program is obtained by following the curriculum of the College of Arts and Sciences.          To graduate, a student must have a grade of C or better in all science and mathematics courses required for the degree, including transfer courses, as specified below. In addition, to graduate a student must have a 2.2 GPA in required science and mathematics courses taken at K-State.</p> <p><del>BIOCH 100 – Biochemistry Orientation Credits: (4)</del>  <del>BIOCH 290 – Biochemistry Seminar Credits: (2)</del></p> <p>BIOCH 522 - General Biochemistry Lab Credits: (2)          BIOCH 755 - Biochemistry I Credits: (3)          BIOCH 765 - Biochemistry II Credits: (3)</p> <p>BIOL 198 - Principles of Biology Credits: (4)  <del>Biological science electives Credits: (8)</del></p> <p><del>Choose from the following:</del>          CHM 210 - Chemistry I Credits: (4)          CHM 230 - Chemistry II Credits: (4)          CHM 371 - Chemical Analysis Credits: (4)          or  <del>CHM 220 – Honors Chemistry I Credits: (5y)</del>  <del>CHM 250 – Honors Chemistry II Credits: (5)</del></p> <p><del>CHM 531 – Organic Chemistry I Credits: (3)</del>  <del>CHM 532 – Organic Chemistry Lab Credits: (2)</del>  <del>CHM 550 – Organic Chemistry II Credits: (3)</del></p> <p>MATH 220 - Analytic Geometry and Calculus I Credits: (4)          MATH 221 - Analytic Geometry and Calculus II Credits: (4)</p> <p>PHYS 113 - General Physics I Credits: (4)          PHYS 114 - General Physics II Credits: (4)</p> <p><del>—*Upper division biochemistry or chemistry</del></p>	<p>General requirements for undergraduate major:  <u>A total of 120 credit hours are required for graduation.</u> The BA program is obtained by following the curriculum of the College of Arts and Sciences.          To graduate, a student must have a grade of C or better in all science and mathematics courses required for the degree, including transfer courses, as specified below. In addition, to graduate a student must have a 2.2 GPA in required science and mathematics courses taken at K-State.</p> <p><b>BA in Biochemistry</b></p> <p><u>BIOCH 110 Biochem &amp; Society Credits (3)</u></p> <p><u>BIOCH521 Gen Biochemistry Credits (3)</u>  <u>BIOCH522 Gen Biochemistry Lab Credits (2)</u>          BIOCH 755 - Biochemistry I Credits: (3)          BIOCH 765 - Biochemistry II Credits: (3)</p> <p>BIOL 198 - Principles of Biology Credits: (4)  <u>BIOL450 Modern Genetics Credits: (4)</u>  <u>BIOL455 General Microbiology Credits: (4)</u>  <u>BIOL541 Cell Biology Credits: (3)</u></p> <p>CHM 210 - Chemistry I Credits: (4)          CHM 230 - Chemistry II Credits: (4)          CHM 371 - Chemical Analysis Credits: (4)</p> <p><u>CHM350 Gen Org Chem Credits: (3)</u>  <u>CHM351 Gen Org Lab Credits: (2)</u></p> <p>MATH 220 - Analytic Geometry and Calculus Credits: (4)          MATH 221 - Analytic Geometry and Calculus II Credits: (4)</p> <p>PHYS 113 - General Physics I Credits: (4)          PHYS 114 - General Physics II Credits: (4)</p> <p><u>STAT703 Stat Methods for Nat Scientists Credits (3)</u></p> <p><u>*Upper-division biochemistry, chemistry,</u></p>
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<p><del>electives Credits: (3)</del>  <del>— Biological science electives Credits: (8)</del>  <del>— Biology, statistics, or computer science, analytical geometry and calculus III, or differential equations elective Credits: (3-4)</del></p> <p>Note: The courses above satisfy the mathematics and natural science requirements shown in the general requirements for the BA degree.</p> <p>A&amp;S requirements Credits (32)  Level 4 Foreign language Credits (4)</p> <p>Total hours required for graduation (124 credit hours)</p>	<p><u>biological science, statistics, computer science, analytical geometry and calculus III, or differential equations elective Credits: (19)</u></p> <p><b>BA in Biochemistry, Medical Biochemistry Track</b></p> <p><u>BIOCH 110 Biochem &amp; Society Credits (3)</u></p> <p><u>BIOCH521 - Gen Biochemistry Credits (3)</u>  <u>BIOCH522 - Gen Biochemistry Lab Credits (2)</u>  <u>BIOCH 571 - Medical Biochemistry Credits: (3)</u>  <u>BIOCH 756 Biochem I Lab Credits (2)</u>  <u>BIOCH757/758/766/767 Biochem II Lab Credits (2)</u></p> <p><u>BIOL 198 - Principles of Biology Credits: (4)</u>  <u>BIOL450 Modern Genetics Credits: (4)</u>  <u>BIOL455 General Microbiology Credits: (4)</u>  <u>BIOL541 Cell Biology Credits: (3)</u></p> <p>CHM 210 - Chemistry I Credits: (4)  CHM 230 - Chemistry II Credits: (4)  CHM 371 - Chemical Analysis Credits: (4)</p> <p><u>CHM350 Gen Org Chem Credits: (3)</u>  <u>CHM351 Gen Org Lab Credits: (2)</u></p> <p>MATH 220 - Analytic Geometry and Calculus Credits: (4)  MATH 221 - Analytic Geometry and Calculus II Credits: (4)</p> <p>PHYS 113 - General Physics I Credits: (4)  PHYS 114 - General Physics II Credits: (4)</p> <p><u>STAT701 Fundamentals of Biostatistics Credits (3)</u></p> <p><u>*Upper-division biochemistry, chemistry, biological science, statistics, computer science, analytical geometry and calculus III, or differential equations elective Credits: (20)</u></p> <p><b>Note:</b> These courses satisfy the mathematics</p>
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	<p>and natural science requirements shown in the general requirements for the BA degree.</p> <p>A&amp;S requirements Credits (32) Level 4 Foreign language Credits (4)</p> <p><u>Total hours required for graduation (120 credit hours)</u></p>
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**RATIONALE:** Biochemistry seeks approval for the modification of its B.A. degree program to substitute the existing class BIOCH110 (Biochemistry and Society – 3 credits) for BIOCH100 (Biochemistry Orientation – 1 credit). This change will improve the educational experience of 1<sup>st</sup> year students in the Biochemistry B.A. degree program, by exposing them to the more stimulating and broad subject matter of BIOCH110. In this plan we also recommend the substitution of CHM350/351 (General Organic Chemistry/Lab) for CHM531/532/550. The more rigorous path of CHM531/532/550 will remain as an elective option, as are Honors General Chemistry CHM220/250 and Engineering Physics PHYS 213/214. We will require STAT703 (Statistical Methods for Natural Scientists). Biochemistry also seeks modification of the existing B.A. degree to include a track in Medical Biochemistry. This program will provide a comprehensive educational framework for students who require pre-veterinary, pre-medical, pre-dental or pre-nursing training prior to pursuing those advanced degrees. The program is in part based on the need for different, specialized training in Biochemistry for students who are preparing for careers in medicine or affiliated fields. This aim is consistent with recent recommendations from the American Association of Medical Colleges (AAMC) and the American Society of Biochemistry and Molecular Biology (ASBMB; attached). We composed a curriculum that addresses the intent of the AAMC and the advice of the ASBMB to emphasize biochemistry in future pre-vet/pre-medical/pre-dent training and testing. We expect that this new degree program at KSU will better serve Kansans who are studying for medically related careers, by providing improved background and better preparation for MCAT, DAT, and GRE testing. Specific classes toward these ends include Biochemistry and Society (BIOCH110), administered in the 1st year, General Biochemistry (BIOCH 521) in the 2nd year, Biochemistry I and II laboratories (BIOCH756,757) and the new course, Medical Biochemistry (BIOCH571; see attached description) in the 3rd year. In this plan, consistent with the recommendations of the AAMC, the ASBMB, and the changing admission requirements of many medical schools (including the University of Kansas) we substitute CHEM350/351 (General Organic Chemistry/Lab) for CHEM531/532/550 and we require STAT701 (Fundamentals of Biostatistics). Honors General Chemistry CHM220/250 and Engineering Physics PHYS 213/214 are elective options. These proposed modifications will divide the BA degree program into two tracks: the standard biochemistry option, and the medical biochemistry option (shown here).

**IMPACT:** The substitution of CHEM350/351 (General Organic Chemistry/Lab) in place of CHEM 531/532/550, which will result in a change in their relative enrollments by students in Biochemistry. The program requires STAT703 (Statistical Methods for Natural Scientists), which will result in additional enrollment. The Biochemistry department currently has 85 undergraduate majors. Aside from these changes we do not anticipate that the new program will affect other units. We will require BIOL 450, 455 and 541, but we already advise students to take these classes, so this requirement will have little new impact.

**EFFECTIVE DATE:** Fall 2013

### **BS in Biochemistry**

**FROM:**

**TO:**

<p>Biochemistry seeks to understand the molecular events of life processes. It applies chemical and physical techniques to elucidate the structure and organization of molecules, particularly macromolecules that are responsible for the structural organization as well as operation and control of all cellular processes. The emerging knowledge has broad importance and consequences for all areas of the life sciences.</p>	<p>Biochemistry seeks to understand the molecular events of life processes. It applies chemical and physical techniques to elucidate the structure and organization of molecules, particularly macromolecules that are responsible for the structural organization as well as operation and control of all cellular processes. The emerging knowledge has broad importance and consequences for all areas of the life sciences.</p>
<p><b>Bachelor's degree requirements</b> General requirements for undergraduate major: A total of 124 credit hours are required for graduation. The BS program is obtained by following the curriculum of the College of Arts and Sciences.</p>	<p><b>Bachelor's degree requirements</b> General requirements for undergraduate major: A total of 124 credit hours are required for graduation. The BS program is obtained by following the curriculum of the College of Arts and Sciences.</p>
<p>To graduate, a student must have a grade of C or better in all science and mathematics courses required for the degree, including transfer courses, as specified below. In addition, to graduate a student must have a 2.2 GPA in required science and mathematics courses taken at K-State.</p>	<p>To graduate, a student must have a grade of C or better in all science and mathematics courses required for the degree, including transfer courses, as specified below. In addition, to graduate a student must have a 2.2 GPA in required science and mathematics courses taken at K-State.</p>
<p><del>BIOCH 100 – Biochemistry Orientation Credits: (1)</del> <del>BIOCH 290 – Biochemistry Seminar Credits: (2)</del> <del>BIOCH 590 – Physical Studies</del></p>	<p><u>BIOCH 110 Biochem &amp; Society Credits (3)</u> <u>BIOCH775 Molecular Biophysics Credits (3)</u></p>

<p><del>Biomacromolecules Credits: (3)</del>  BIOCH 755 - Biochemistry I Credits: (3)  BIOCH 756 - Biochemistry I Lab Credits: (2)  BIOCH 765 - Biochemistry II Credits: (3)</p> <p>BIOL 198 - Principles of Biology Credits: (4)</p> <p>Choose from the following:  CHM 210 - Chemistry I Credits: (4)  CHM 230 - Chemistry II Credits: (4)  CHM 371 - Chemical Analysis Credits: (4)  or  <del>CHM 220 - Honors Chemistry I Credits: (5)</del>  <del>CHM 250 - Honors Chemistry II Credits: (5)</del>  <del>CHM 531 - Organic Chemistry I Credits: (3)</del>  <del>CHM 532 - Organic Chemistry Lab Credits: (2)</del>  <del>CHM 550 - Organic Chemistry II Credits: (3)</del>  CHM 500 - General Physical Chemistry Credits: (3)</p> <p>MATH 220 - Analytic Geometry and Calculus Credits: (4)  MATH 221 - Analytic Geometry and Calculus II Credits: (4)</p> <p>PHYS 113 - General Physics I Credits: (4)  PHYS 114 - General Physics II Credits: (4)</p> <p><del>—*Upper-division biochemistry or chemistry electives Credits: (3)</del>  <del>—Biological science electives Credits: (8)</del>  <del>—Biology, statistics, or computer science, analytical geometry and calculus III, or differential equations elective Credits: (3-4)</del></p> <p><del>*Must include at least one credit hour of BIOCH 799 Problems in Biochemistry. Up to two credit hours of Advanced Biochemistry Laboratories (BIOCH 757, BIOCH 758, BIOCH 766, BIOCH 767) can be applied towards this requirement.</del></p> <p>Total hours required for graduation (124 credit hours)</p> <p>Note: The courses in the list above satisfy the natural sciences and quantitative reasoning</p>	<p>BIOCH 755 - Biochemistry I Credits: (3)  BIOCH 756 - Biochemistry I Lab Credits: (2)  BIOCH 765 - Biochemistry II Credits: (3)  <u>BIOCH 799 Problems in Biochemistry Credits (1-3)</u></p> <p>BIOL 198 - Principles of Biology Credits: (4)  <u>BIOL450 Modern Genetics Credits (4)</u>  <u>BIOL455 General Microbiology Credits (4)</u>  <u>BIOL541 Cell Biology Credits (3)</u></p> <p>CHM 210 - Chemistry I Credits: (4)  CHM 230 - Chemistry II Credits: (4)  CHM 371 - Chemical Analysis Credits: (4)</p> <p><u>CHM350 Gen Org Chem Credits: (3)</u>  <u>CHM351 Gen Org Lab Credits: (2)</u></p> <p>CHM 500 - General Physical Chemistry Credits: (3)</p> <p>MATH 220 - Analytic Geometry and Calculus Credits: (4)  MATH 221 - Analytic Geometry and Calculus II Credits: (4)</p> <p>PHYS 113 - General Physics I Credits: (4)  PHYS 114 - General Physics II Credits: (4)</p> <p><u>STAT703 Stat Methods for Nat Scientists</u></p> <p><u>*Upper-division biochemistry, chemistry, biological sciences, statistics, computer science, analytical geometry and calculus III, or differential equations elective Credits: (16-18)</u></p> <p><u>Up to two credit hours of Advanced Biochemistry Laboratories (BIOCH 757, BIOCH 758, BIOCH 766, BIOCH 767) can be applied towards the requirement for BIOCH 799 Problems in Biochemistry.</u></p> <p>Total hours required for graduation (124 credit hours)</p> <p>Note: The courses in the list above satisfy the natural sciences and quantitative reasoning</p>
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requirements shown in the general requirements for the BS degree.  A&S requirements Credits (32)	requirements shown in the general requirements for the BS degree.  A&S requirements Credits (32)
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**RATIONALE:** Biochemistry is seeking approval for the modification of its B.S. degree program to substitute the existing class BIOCH110 (Biochemistry and Society – 3 credits) for BIOCH100 (Biochemistry Orientation – 1 credit), and to substitute a new class entitled Molecular Biophysics (see attached description – 3 credits) for BIOCH590 (Physical Studies of Biomacromolecules – 3 credits). This change will improve the educational experience of 1<sup>st</sup> year students in the Biochemistry B.S. degree program, by exposing them to the more stimulating subject matter of BIOCH110. The proposed new name of BIOCH590 does not affect its content; we desire the new name for consistency with the anticipated change in our departmental title to Biochemistry and Molecular Biophysics. Additionally, we stipulate the substitution of CHM350/351 (General Organic Chemistry/Lab) for CHM531/532/550. The more rigorous path of CHM531/532/550, as well as Honors General Chemistry CHM220/250 and Engineering Physics PHYS 213/214, remain optional in the new plan.

**IMPACT:** The substitution of CHEM350/351 (General Organic Chemistry/Lab) in place of CHEM 531/532/550 will result in a change in their relative enrollments by students in Biochemistry. The program requires STAT703 (Statistical Methods for Natural Scientists), which will result in additional enrollment. The Biochemistry department currently has 85 undergraduate majors. Aside from these changes we do not anticipate that the new program will affect other units. We will require BIOL 450, 455 and 541, but we already advise students to take these classes, so this requirement will have little new impact.

**EFFECTIVE DATE:** Fall 2013

# CURRICULUM CHANGES

## Graduate (Non-Expedited)

### Geographic Information Science Graduate Certificate

FROM:

TO:

<p>The course requirements for the Graduate Certificate in GIScience are shown below. <del>A maximum of 6 transfer credit hours may be used to meet program requirements.</del> Students must earn a minimum GPA of 3.33 in the Geospatial Core to qualify for the Graduate Certificate in GIScience. <del>The graduate faculty for the program will periodically review the certificate requirements and have the authority to pass modifications to the approved list of courses.</del></p> <p>Prerequisites:</p> <p>Competence in cartography, thematic mapping, or geodesy (e.g., GEOG 302)          Competence in basic statistics (e.g., STAT 320, STAT 330, STAT 350)          Competence in object-oriented computer programming (e.g., <del>Visual Basic for Applications</del>)</p> <p>Geospatial Core (9 credit hours):</p> <p>GEOG 508 Geographic Information Systems I (4)          GEOG 605 Remote Sensing of the Environment (3)          GEOG 608 Geographic Information Systems II (3)</p> <p>Elective courses – Select two (minimum of 6 credit hours):</p> <p>AGRON 655 Site-Specific Agriculture (3)          CE 585 Civil Engineering Project (1-3)</p>	<p>The course requirements for the Graduate Certificate in GIScience are shown below. <u>A minimum of 15 graduate credit hours is required to earn the certificate. A maximum of two geospatial core courses may be waived and replaced with approved electives in cases where students have completed prior coursework for undergraduate credit.</u> Students must earn a minimum GPA of 3.33 in the geospatial core to <u>earn the certificate.</u></p> <p>Prerequisites:</p> <p>Competence in cartography, thematic mapping, or geodesy, <u>or geomatics</u> (e.g., GEOG 302)          Competence in basic statistics (e.g., STAT 320, STAT 330, STAT 350)          Competence in object-oriented computer programming (e.g., <u>Python</u>)</p> <p>Geospatial Core (<u>10</u> credit hours)</p> <p>GEOG 508 Geographic Information Systems I (4)          GEOG 605/<u>AGRON 706</u> Remote Sensing of the Environment (3)          GEOG 608 Geographic Information Systems II (3)</p> <p>Elective courses – Select two (minimum of 6 credit hours):</p> <p>AGRON 655 Site-Specific Agriculture (3)  <del>BAE 869 Advanced Watershed Modeling (3)</del>          CE 585 Civil Engineering Project (1-3)</p>
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<p>CIS 501 Software Architecture and Design (3)</p> <p>CIS 560 Database System Concepts (3)</p> <p>CIS 635 Introduction to Computer-based Knowledge Systems (3)</p> <p>CIS 636 Introduction to Computer Graphics (3)</p> <p><del>DAS/DEN/GENAG 582 – Natural Resources/Environmental Science Project (NRES) (3)</del></p> <p>GEOL 560 Field Methods (3)</p> <p>GEOG 602 Computer Mapping and Geographic Visualization (3)</p> <p>GEOG 610 Geography Internship (1-3)</p> <p>GEOG 700 Quantitative Analysis in Geography (3)</p> <p>GEOG 711 Topics in Remote Sensing (3)</p> <p>GEOG 795 Topics in Geographic Information Science (1-3)</p> <p>GEOG 808 Geocomputation (3)</p> <p>GEOG 880 Spatial Data Analysis and Modeling (3)</p> <p>GEOG 895 Topics in Spatial Analysis (1-3)</p> <p><del>LAR 758 Land Resource Information Systems (3)</del></p>	<p><u>CE 752 Advanced Hydrology (3)</u></p> <p><u>CE 786 Land Development for Civil Engineers and Planners (3)</u></p> <p>CIS 501 Software Architecture and Design (3)</p> <p>CIS 560 Database System Concepts (3)</p> <p>CIS 635 Introduction to Computer-based Knowledge Systems (3)</p> <p>CIS 636 Introduction to Computer Graphics (3)</p> <p>GEOL 560 Field Methods (3)</p> <p>GEOG 602 Computer Mapping and Geographic Visualization (3)</p> <p>GEOG 610 Geography Internship (1-3)</p> <p>GEOG 700 Quantitative Analysis in Geography (3)</p> <p>GEOG 711 Topics in Remote Sensing (3)</p> <p><u>GEOG 712 Internet GIS and Distributed GIServices (3)</u></p> <p>GEOG 795 Topics in Geographic Information Science (1-3)</p> <p><u>GEOG 808 Geocomputation (3)</u></p> <p><u>GEOG 880 Spatial Data Analysis and Modeling (3)</u></p> <p>GEOG 890 Advanced Spatial Analysis Techniques (3)</p> <p>GEOG 895 Topics in Spatial Analysis (1-3)</p> <p>LAR 704 Environmental Landscape Planning and Design (5)</p> <p>PLAN 801 Planning Methods I (3)</p> <p><u>PLAN 836 Community Plan Preparation (3)</u></p> <p><u>STAT 703 Statistical Methods for Natural Scientists (3)</u></p> <p><u>STAT 704 Analysis of Variance (2)</u></p> <p><u>STAT 705 Regression and Correlation Analysis (2)</u></p>
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**RATIONALE:** This is a routine update of the Geographic Information Science Graduate Certificate to reflect recent changes in course names/numbers and cross-listings, as well as to expand the list of pre-approved elective courses. Due to previously approved credit hour change to one of the geospatial core courses (GEOG 508), the total credit hour requirement can now range between 15 to 16 hours, with a minimum of 15 required to earn the certificate.

IMPACT: BAE, CE, LAR, PLAN, STAT

EFFECTIVE DATE: Spring 2013