Lehigh University

MINUTES OF THE FACULTY MEETING

20 March 2006

Presiding: Gregory Farrington (Sinclair Auditorium)

President Farrington called the meeting to order at 4:10 PM.

1. **Minutes.** The minutes of the February 20, 2006 faculty meeting were APPROVED.

2. **Memorial Resolutions.** Professor Lenora Wolfgang read a tribute to John van Eerde, late Professor Emeritus of Modern Foreign Languages. Professor Wolfgang then MOVED that her remarks be incorporated in these minutes [see Attachment 1] and that a copy be sent to the family. The President declared the motion APPROVED by acclamation and the faculty STOOD for a moment of silence in memory of John van Eerde.

Professor Lenora Wolfgang read a tribute to Alexander Waldenrath, late Professor Emeritus of Modern Foreign Languages. Professor Wolfgang then MOVED that her remarks be incorporated in these minutes [see Attachment 2] and that a copy be sent to the family. The President declared the motion APPROVED by acclamation and the faculty STOOD for a moment of silence in memory of Alexander Waldenrath.

Professor David van Horn read a tribute to Celal N. Kostem, late Professor Emeritus of Civil Engineering. Professor van Horn then MOVED that his remarks be incorporated in these minutes [see Attachment 3] and that a copy be sent to the family. The President declared the motion APPROVED by acclamation and the faculty STOOD for a moment of silence in memory of Celal N. Kostem.

3. **Committee Motions.** Professor Rosemary Muncherk, on behalf of the Faculty Steering Committee, asked for a change in the order of the agenda to consider the Faculty Senate Proposal. There were no objections.

Professor Michael Kolchin, on behalf of the Faculty Governance Subcommittee of the Faculty Steering Committee, chaired a discussion on the proposed Faculty Senate [see Attachment 4 for the latest version of the proposal]. He asked Professor Ed Kay to withdraw his motion made at the February 20, 2006 faculty meeting. Professor Kay WITHDREW his motion. Professor Jim McIntosh WITHDREW his second.
Professor Kolchin began by announcing that all faculty would soon receive e-mailed instructions on casting an electronic ballot. Balloting will continue until April 7.

Professor Russell Shaffer asked if the votes would be strictly "yes" or "no." Professor Kolchin replied that, "Abstentions will be counted as well."

Professor Barry Bean asked how the proposal would fit into R&P. Professor Kolchin replied that if the proposal passes, R&P will have to be revised to incorporate the faculty senate document.

Professor Roger Nagel asked if R&P pages could be easily replaced. Professor Kolchin replied that the biggest changes would be with respect to the Personnel Committee. If the proposal is passed, the process would be to take the proposal to the Academic Affairs Subcommittee of the Board of Trustees in June, with the expectation that a formal vote of the entire board would take place in October. If the proposal is passed by the faculty and approved by the board, the proposal would take effect on July 1, 2007.

In the interim, an election process would be developed with senate elections to occur in May of 2007. Simultaneously, there would be continuing discussions with the administration regarding budgets, the interface of the senate with the board, and other matters. The senate by-laws would be written by the first senate.

Professor Sudhakar Neti asked how a faculty senate will enhance the faculty’s voice with the administration and the board.

Professor Kolchin identified several keys: a more unified faculty voice; more effective presentations to the board; more frequent communications with the board; and a more informed and deliberative decision making process.

Professor Kay offered his thanks to the subcommittee for a great job (Applause).

Professor Kolchin recognized the efforts of committee members Jean Soderlund, Alastair MacAulay, Barbara Traister, George White, Art King, Slade Cargill, Mike Gill and John Pettigrew. He also recognized the efforts of previous groups led by Barbara Traister and Hannah Stewart-Gambino.

Professor Mundhenk stated that it was significant that the proposal has the support of the representatives and chairs of the university standing committees.
Professor Kolchin asked everyone to encourage their colleagues to vote. He also noted the proposal was sent to AAUP and was endorsed by AAUP.

President Farrington acknowledged the fine work. He said he believed the faculty senate could well be a major step forward for Lehigh.

Professor David Small, on behalf of the Educational Policy Committee moved course and curriculum changes in the College of Business and Economics [see binder in secretary's office]. The motion was seconded. The motion passed.

Professor Small then moved course and curriculum changes in the College of Arts and Sciences [see binder in secretary's office]. The motion was seconded. The motion passed.

Professor Small then moved waiver of the '7-Day Rule' to consider course and curriculum changes in the PC Rossin College of Engineering and Applied Science. The motion was seconded. The motion passed. Professor Small then moved course and curriculum changes in the PC Rossin College of Engineering and Applied Science [see binder in secretary's office]. The motion was seconded.

Professor Alwyn Eades requested that the minutes reflect his objection to the elimination of Chem 97 as a requirement in most engineering programs. He cited a lack of communication with affected programs.

Professor Neti asked that the proposal to eliminate Chem 97 as a requirement be tabled. The motion was seconded. The motion to table failed by a vote of 22 'Yea' and 32 'Nay'.

The original motion passed.

Professor Mary Beth Deily, on behalf of the Graduate and Research Committee moved approval of the environmental initiative certificate program in the College of Arts and Sciences [see binder in secretary's office]. The motion was seconded. The motion passed.

Professor Deily then moved approval of graduate curriculum changes in the PC Rossin College of Engineering and Applied Science [see binder in secretary's office]. The motion was seconded. The motion passed.

Professor Deily then moved a waiver of the '7-Day Rule' to consider changes in course requirements in the College of Education. The motion was seconded. The motion passed. Professor Deily then moved approval of graduate curriculum changes in the College of Education [see binder in secretary's office]. The motion was seconded. The motion passed.
Professor Deily then moved a waiver of the 7-Day Rule to consider changes in Sections 3.22.1 and 3.27.1 to R&P. The motion was seconded. The motion passed. Professor Deily then moved changes in Sections 3.22.1 and 3.27.1 to R&P [see binder in secretary's office]. The motion was seconded. The motion passed.

Professor Deily then engaged a discussion on the classification of research personnel with respect to short-term and long-term appointments [see binder in secretary's office].

Vice Provost David Williams cited the need for consistent definitions for research personnel and noted that the document was benchmarked and concise.

Professor Steve Regen asked what data was gathered from other research universities and whether the faculty could have access to that data. Vice Provost Williams said that 5 or 6 similar universities were investigated and that the Sigma Xi survey was also used.

Professor Regen then asked if data from all the 'Top 25' research universities was collected and also asked if the faculty could see the data that was used. Vice Provost Williams stated that it would be asking for a lot to get the data from all 25.

A spirited discussion ensued focusing on the distinctions between post-doctoral research positions and research scientists. Vice Provost David Williams emphasized the need to place all research personnel in appropriate salary brackets.

Professor Jean Toulousé called on the development of a policy with more flexibility.

Professor Jim Roberts noted the laudable goals of the document but worried about the tyranny of computers.

Professor Deily asked faculty to e-mail suggestions to Vice Provost Williams. Professor Ward Cates suggested that a better idea might be open forums of the faculty.

Professor Deily said she would start the process by beginning a message board on Blackboard under GRC.

4. **Unfinished Business**: None.

5. **New Business**: None.
6. **Committee Reports** None.

7. **President's Report** President Farrington stated that offers of admission to the Class of 2010 were about to be sent. Many breakfasts will be held in April for admitted students and their parents. He cautioned faculty not to drive the "wrong way" on University Drive.

8. **Provost's Report** None.

The meeting stood adjourned at 6:04 PM.

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Memorial Resolution for Professor John van Erde before the faculty, Lehigh University,
March 20, 2006
Professor Lenora D. Wolfgang

John van Erde died on January 8 of this year in Kirkland village, Bethlehem, at the age of
89. He came to Lehigh in 1960 and retired as professor of French in 1985. He served as
department chair 1967-72 and as acting chair 1984-85.

Before coming to Lehigh, John taught at the University of Rhode Island, Johns Hopkins,
Smith College, Amherst and Yale. He received his PhD at Johns Hopkins in 1953.

John served in the US Army in World War II, 1941-46, and was honorably discharged as a
captain. While stationed in Italy, he read Italian Prisoner of War mail for the Allied Intelligence.
In 1946 he was named a knight of the Order of the Crown of Italy (Cavaliere dell'Ordine della
Corona d'Italia); and in 1973 he was named Knight in Academic Laurels (Chevalier de l'ordre
des Palmes Académiques) by the French Government. John very much loved Italian, and he
taught it from time to time at Lehigh, although it has never been a regular offering in our
department.

His field of French was 17th and 18th century French literature, especially the theatre. Some of
the authors he published articles about were Corneille, Racine and Molière; Fontenelle; Victor
Hugo; Jules Verne; and Giraudoux.

John developed Lehigh's first Foreign Studies Program and took a group of students to Nice
in 1967.

He was very interested in so-called threatened languages, like Romansh (a Swiss dialect);
Welsh; Catalan; Friulian (a dialect of north-eastern Italy); Gaelic (of Ireland and Scotland); and
Breton (a Celtic language of Brittany.) He did research on these languages and published various
articles and gave papers about them.

In 1984, the Dean wrote the following about him: "Next year [1984-85] will be his last year at
Lehigh, and we shall miss him. He has served well, has maintained high standards, served with
dignity and humor, and will leave the University a better place for his having been here."

His humor was wry and sly. He liked to poke his head into one's office of a morning with a
puzzle or a pun, often a bit challenging considering the hour. He was a gentleman of the Old
School, that included early schooling in England and France; the Browning School in New York
City; and undergraduate degrees from Harvard. He was a man of three-piece suits, starched
shirts, and classical French plays. With him an era passes, and we are pleased to salute him as we
regret his passing.

Respectfully submitted,

[Signature]

Lenora D. Wolfgang
Memorial Resolution for Dr. Alexander Waldenrath before the faculty, Lehigh University  
March 20, 2006  
Professor Lenora D. Wolfgang and Professor Emerita Anna Pirscenok Herz

Douglas Alexander Waldenrath died January 6 of this year in Kiel, Germany, at the age of 67. He came to Lehigh in 1968, and retired as an Associate Professor of German in 2001.

Before coming to Lehigh, he taught in Berlin at the Lessing Gymnasium (named for the figure he would write about for his PhD dissertation) and at the Dieterweg Gymnasium. He also taught at Berkeley and earned his PhD there in 1959.

His areas of interest and expertise were 18th century German Literature; the age of Goethe; Romanticism; Reformation and Baroque; and Germanica Americana, particularly Pennsylvania German. He published over twenty articles on Germanica Americana, such as: “The Germanic Language Newspapers of Pennsylvania during the American Revolution”; “John Bernelin’s Poetry Mirrors his Native Berks”; “Johan Heinrich Miller: German American Patriot”; “The Friedensbote: A major German Language Newspaper of the Lehigh Valley.” He contributed to the Annual Bibliography of German American Studies and to the on-line electronic bibliography “Deutsch-Englisches Wörterbuch” in the “Leo-Link Everything online.” He also published over twenty reviews and edited three others. He organized a conference on the Palatinate and Pennsylvania at Lehigh, and he did cultural commentaries for German International radio.

One work-in-progress titled “Norddeutscher Humor” brings to mind the amused and amusing personality he was. Even after he retired, he forwarded lists of on-line jokes and bons mots that made the rounds among his friends and colleagues. Remused and a bit of a cynic, he nevertheless had a willingness to believe in the goodness and the good intentions of others.

He was very active in dealing with students. He tutored two students who received Fulbright scholarships to Germany and he helped others to find internships in Germany. He was the faculty advisor to the Phi Kappa Theta fraternity and received special commendations for his ten years as advisor. On March 16, 1991, he received a citation from the mayor of Bethlehem recognizing the city’s gratitude for his dedicated service to the fraternity, and the mayor named March 16 “Alexander Waldenrath Day” in Bethlehem. Alex also received a commendation from the Governor of Pennsylvania for his service with the fraternity and its community service to society. In the fall of 1992, the Chapter Room of the Phi Kap house was officially dedicated as the “Dr. Alexander ‘Fritz’ Waldenrath Room.” Alex was also honored in Germany. He received a state gold medal in 1976 from the Rhineland Palatinate for his “academic work and publications, which have served to further an understanding between the United States and Germany.”

In May, 2001, Dean Bobb Carson wrote to Alex: “Your retirement marks the end of an era at Lehigh. You and I have witnessed the slow transformation of an engineering institution to a full-fledged university. In all of that, you and your colleagues have played a critical role in making
language study an integral and fundamental part of the educational experience of thousands of undergraduates. I presume that knowledge is a source of considerable satisfaction to you. It is certainly the basis for what I anticipate will become an increasingly active program of international study. Many thanks.”

Alex was my next-door neighbor in Coppee Hall before the department moved to Maginnis. We shared morning quips and quotes on our mutual teaching days. He was in every way a gentleman and a scholar. If we had glasses now, I would propose a toast in his honor: “To Alex, with good cheer, from all of us, colleagues and friends! God speed.”

Respectfully submitted,

Lenora D. Wolfgang

Anna Pirscenok Herz
October 12, 2005

To: College Policy Committee
From: Susan A. Sherer

Subject: History and Rationale for Mgt. 280 split

In response to your request for more information about the proposal for splitting Mgt.
280 into two courses, I provide here the history and current need for this split.

I. Creation of Mgt. 280

On February 29, 1999, the Mgt and Marketing Department put forth a proposal to
replace Mgt. 269 and Mgt. 270 with Mgt. 280. The Mgt 280 course was described as:
“A total quality management perspective of managing people and
operations in today’s modern organization.”

The rationale was that this would be a team taught course that would be a first step
towards integration of the undergraduate core curriculum, “an action consistent with
AACSB accreditation efforts” at that time. In 1999 The M&M Department envisioned
that this would be the first step toward an integrated core of several four credit courses. It
was expected that the other functional core courses would also integrate so some of the
materials traditionally covered in Mgt. 269/270 would also be introduced in the other
integrated core courses, for example, demand forecasting integrated with a course that
included other marketing topics.

II. Teaching history

We tried several different approaches to teaching this course.

1. Team teaching (1 faculty member with OM background; 1 with OB
background). It was hoped that two faculty members could seamlessly blend materials
so, for example, when a topic such as quality was introduced, a discussion of training
issues could follow. When operations metrics were introduced, change management
issues could be blended. However, this blending of topics never took place. While the
original syllabus had a mix of topics from the two areas, these were introduced as
separate topics. Undergraduate students, without organizational or operational
experience, could not understand these connections. The faculty could not effectively
 teach a blended course. Moreover, the resource implications of two faculty in the single
class could not be supported.

2. Single faculty member with operations experience and background. This
course did not teach effectively the organizational and behavioral concepts.
Additionally, the course could not cover some of the quantitative modeling topics
required for some of the students (see below).
3. Faculty with organizational behavior academic background. This approach could not effectively cover key operations concepts.

III. Rationale for change

1. Lack of integrated core: The rest of the core never achieved the integration anticipated by this first step toward integration. This left this one course unable to cover all the topics needed to be effective as an integrator. As Bob Trent states so well, "it was like creating an industrial park and then only one company shows up."

2. Inability to staff effectively: Since 1999 the college has moved towards a greater emphasis on research capabilities for new faculty. Those individuals with strongest research credentials are specialists in their area of expertise. They do not have the background to teach an integrated generalist course. Since supply chain/operations management and organizational behavior are typically housed in different departments in academic institutions, research oriented academics with knowledge in both of these areas are very difficult to find.

3. Change in business focus: The primary objectives for this course have changed. This has resulted in a need to focus on an expanded set of business topics including supply chain management. Supply chain management has grown in importance in business today. There is a need to consider issues that companies did not have to consider several years ago such as global sourcing. This has increased the need for students to understand a wider variety of supply chain operations topics.

4. Importance of behavioral skills: Employers have suggested that our students lack key behavioral skills. This has led to a move towards introducing professional skills as an add-on to the curriculum. We feel that we could incorporate many of these skills within an existing course, which would be a much more effective way to teaching them, combining theory and practice.

5. Quantitative skills: In moving to the integrated core, some of the quantitative skills included in the original Operations Management course were eliminated. Key constituents suggest a need to increase these skills. For example, NYICPA indicates students do not have enough quantitative skills.

6. Benchmarks: We reviewed the curriculum of both the top 10 schools according to U.S. News and World Report ranking (Wharton, MIT, Berkeley, U Michigan, Carnegie Mellon, NYU, UNC, UT Austin, USC, UVA) and competitive institutions (BU, BC, BYU, Cornell, Emory, Miami, RIT, Maryland, Washington, Washington U, William and Mary). Of these schools, OM is a core requirement in 16/21 (7/10 of top 10; 9/11 of competitive schools). OB is a core requirement in 17/21 of these schools (7/10 of top 10, 10/11 of competitive schools).
IV. Summary

We feel that we made a good faith effort to innovate within the curriculum but in the spirit of continuous innovation, we have concluded that this attempt has not been successful. As a result, the course is not meeting our objectives and our students have not received a competitive background in these areas. We therefore propose that we move back to two courses, however different from the original courses of years past. One course, Supply Chain Operations Management, would incorporate much broader coverage of supply chain concepts in addition to key operations issues. In addition, there would be a simulation component to that course. The second course, Management of Organizations, would have a strong focus on labs and experiential experiences in the behavioral side. This will bring us back in line with our competition.

We recognize that this move does add two credits from the core which will come from free electives. We believe that these two credits are important to cover business topics that our students will need to be competitive.
Proposed New Course

1. Proposed new course number and course description (as it will appear in course catalogue):

   MGT 2xx. Management of Organizations
   Introduction to the principles of management and human behavior in organizations.
   Survey of organizational design, structure, strategy, planning, control, human resource
   management and project management. Conceptual and applied introduction to
   organizational behavior topics such as individual differences, perception/
   judgment/decision-making, motivation, communication, teams/groups, leadership,
   conflict, ethics, social responsibility, diversity and culture. Prerequisite: junior standing
   in the CBE.

2. Instructional mode (lecture, recitation, laboratory, seminar, independent
   study, or other) and number of contact hours per week:

   2 50-min lectures and 1 50-min lab/discussion per week

3. Rationale for proposed new course:

   Replaces existing MGT 280, which is currently a hybrid course with a general
   management and organizational behavior component, and an operations
   management/science component. The two areas are too distinct for most
   faculty to teach and are pedagogically very difficult to integrate.

4. Academic impact on programs affected by new course:

   The new course combined with a proposed new supply chain operations course would
   increase by two credits the overall core credit load for undergrads, but the benefits for
   doing so would be great. Very few universities attempt to merge such disparate areas
   into one course. Even separating out the operations topics, the domain for this course
   would be quite broad as it merges principles of management (design, structure, strategy,
   planning, human resources, control, project management) with organizational behavior
   topic areas (individual differences, perception/judgment/decision-making, motivation,
   communication, teams/groups, leadership, conflict, ethics, social responsibility, diversity,
   culture)

   A. is the proposed course to be cross-listed?

      No

   B. Identify any known effects of the proposed new program on other
      programs at the University.

      The only impact is on the core CBE curriculum.
C. If there are known effects, individuals in charge of the affected programs must be consulted about the proposed new program and the following information provided:

1) Who was consulted?

Joan DeSalvatore, Associate Dean of Undergraduate Studies and CBE Undergraduate Curriculum Committee were consulted.

2) Is the proposed new program acceptable to all other programs affected?

Yes, acceptable to Undergraduate Core Curriculum Committee.

3) Will any changes be required in the affected programs? If so, please describe below:

Core curriculum increased by two credits.

D. Does the proposed new program affect the University's commitment to diversity in any way? If so, please describe below:

No

5. Resource Impact

A. Provide impact statements in the four areas listed below:

1) Library impact statement (attach statement if provided by LTS)

No impact.

2) Computer impact statement (attach statement if provided by LTS)

No impact.

3) Faculty impact statement (how proposed program affects load on existing faculty or requires new faculty)

Faculty member currently teaching Mgt. 280 will teach this course.

4) Facilities impact statement (how proposed program affects load on existing facilities or requires new facilities)

We will need classrooms for both the lecture and recitations.
B. Provide a statement indicating who will assume financial responsibility for any new resources required:

The college will need to fund one additional TA.
Proposed New Course

1. Proposed new course number and course description (as it will appear in course catalogue):

Mgt 1xx  Supply Chain Operations Management
Introduction to managing global supply chains and operations within the context of an integrated value chain. Topics include purchasing and supplier management, demand forecasting, aggregate planning and inventory management, collaborative planning, forecasting, and replenishment processes, capacity planning, ERP, quality management, distribution, transportation management, service operations logistics, and performance measurement.
Prerequisites: Math 21 or 7576, Eco 145

2. Instructional mode (lecture, recitation, laboratory, seminar, independent study, or other) and number of contact hours per week:

The proposed course will be taught in two 50 minute lectures per week with one 50 minute recitation section for discussion.

3. Rationale for proposed new course:

Several years ago, the Department of Management introduced Mgt. 280 whose purpose was to integrate material from both Mgt. 269, Operations Management, and Mgt. 270 Organizational Behavior. This approach has failed to meet the original expectations. Mgt. 280 has not been able to provide enough background in operations or to integrate effectively with organizational topics. Moreover, the importance of managing the entire supply chain end to end, rather than simply internal operations, has grown in importance, particularly as many firms are moving to greater outsourcing and global operations.

4. Academic impact on programs affected by new course:

This course will be required in the core curriculum. The total number of credits in the core will increase by two.

A. Is the proposed course to be cross-listed?

No

B. Identify any known effects of the proposed new program on other programs at the University.

The only impact is on the core CBE curriculum.
C. If there are known effects, individuals in charge of the affected programs must be consulted about the proposed new program and the following information provided:

1) Who was consulted?

Joan DeSalvatore, Associate Dean of Undergraduate Studies and GBE Undergraduate Core Curriculum Committee have been consulted.

2) Is the proposed new program acceptable to all other programs affected?

Yes, acceptable to Undergraduate Core Curriculum Committee.

3) Will any changes be required in the affected programs? If so, please describe below:

Core curriculum increased by two credits.

D. Does the proposed new program affect the University's commitment to diversity in any way? If so, please describe below:

No

5. Resource Impact

A. Provide impact statements in the four areas listed below:

1) Library impact statement (attach statement if provided by LTS)

No impact.

2) Computer impact statement (attach statement if provided by LTS)

No impact.

3) Faculty impact statement (how proposed program affects load on existing faculty or requires new faculty)

The Management Department will need an additional faculty member to teach this course. A faculty slot has already been allocated and we are recruiting.

4) Facilities impact statement (how proposed program affects load on existing facilities or requires new facilities)

We will need classrooms for both the lecture and recitations.
B. Provide a statement indicating who will assume financial responsibility for any new resources required:

New position in SCM approved by Provost's Office.
The college will need to fund one additional TA.
Proposed New Course

CSB 314. International Practicum (1-3)
A faculty led, foreign-based activity to provide students the opportunity to work on consulting assurance, or other IT-related projects with business organizations, consulting companies, and public accounting firms. Typical projects: systems analysis and design, systems configuration and implementation, database design, user interface design, and internal control assessment. Students complete written reports and make formal presentations to client firms. Prerequisites: Acct 311, or CSB 311, or permission of the instructor.

Rationale
The Computer Science and Business Program sponsors summer programs in Prague, Budapest, and Shanghai, in which the students have faculty directed opportunities with various firms. This course provides a framework for that activity. The criterion used to assign credits is 1 credit hour = 40 hours of on site contact.

Instructional Mode
Independent study

Academic impact on programs affected by new course:
This will benefit the implantation of the summer abroad programs that CSB sponsors

Is the proposed course to be cross-listed?
NO

Identify any known effects of the proposed new course on other programs at the University.
This course may be taken by students in the Lehigh in Shanghai, Lehigh in Prague, and Lehigh in Ireland programs

If there are known effects, individuals in charge of the affected programs must be consulted about the proposed new course and the following information provided:

(1) Who was consulted?
Connie Cook, director of the Lehigh in Shanghai Program
Vince Munley, directory of the Lehigh in Ireland Summer Program
Art King, Director of Lehigh in Prague program

(2) Is the proposed new course acceptable to all other programs affected?
The directors of the programs are eager to have the course.

(3) Will any changes be required in the affected programs? If so, please describe below
NO

Does the proposed new course affect the University’s commitment to diversity in any way? If so, please describe below:
No

Resource Impact
None

Provide impact statements in the four areas listed below:
(1) Library impact statement (attach statement if provided by ITS)
N/A
(2) Computer impact statement (attach statement if provided by ITS)
N/A
(3) Faculty impact statement (how proposed program affects load on existing faculty or requires new faculty)
None. The course will only be offered during the summer.

Facilities impact statement (how proposed program affects load on existing facilities or requires new facilities)
None

Provide a statement indicating who will assume financial responsibility for any new resources required.
None required.
COURSE & CURRICULUM CHANGES: 2005-06

Africana Studies
Course changes
1. Courses dropped
   AAS/Art 150. Africans in the New World (3)
   Rationale: The course has not been taught in several years and there is
   no likelihood any faculty member will be available in the near future
   to teach it.

2. Courses added
   None

3. Other changes (number, title, credits, or distribution designation)
   None

4. Changes in description
   None

5. Impacts of course changes
   Since the class has not been taught recently there would be no significant
   curricular impact as a result of the course’s deletion from the Catalog.

Africana Studies
Course changes
1. Courses dropped
   None

2. Courses added
   AAS/ANTH 183. Peoples and Cultures of Africa (4)
   AAS/ANTH 183. Peoples and Cultures of Africa (4)
   Rationale: This course is a crucial part of the core curriculum in Africana
   Studies and needs to be offered on a regular basis.

3. Other changes (number, title, credits, or distribution designation)
   None

4. Changes in description
   None

5. Impacts of course changes
   The addition of this course expands our modest number of regularly taught
   courses on Africa, a key component of the AAS curriculum.
Africana Studies

Course changes

1. Courses dropped
   None

2. Courses added
   None

3. Other changes (number, title, credits, or distribution designation)
   Added Cross-Listed Courses (6)
      AAS/English 318. Topics in African-American Literature and Culture (4)
      AAS/Music 128. Jazz History I (3)
      AAS/Music 129. Jazz History II (3)
      AAS/Philosophy 117. Race and Philosophy (4)
      AAS/Political Science 352. Civil Rights and Civil Liberties (4)
      AAS/Theatre 35. Performance (2)

   Rationale: The purpose of these additions is to strengthen the program's offerings in the humanities and in political science, an important field that presently receives very little attention in the AAS curriculum.
   The granting of Africana Studies credit for Theatre 35 would be limited to productions that substantially depict the black experience.

4. Changes in description
   None

5. Impacts of course changes
   These additions will substantially increase the overall number of AAS courses the program can regularly offer, thus enabling the program to better serve current and prospective majors in the field.

Africana Studies

Course changes

1. Courses dropped
   None

2. Courses added
   None

3. Other changes (number, title, credits, or distribution designation)
   The course number for AAS/History 129. Black Political Thought in America (4) is to be changed to 179.
   Rationale: The course number needs to be changed so it won't conflict with Music 129, which is to be cross-listed as an AAS course. We have checked
with the Department of History to make certain the new course number doesn’t conflict with any of its 100 level courses.

4. **Changes in description**
   
   *None*

5. **Impacts of course changes**
   
   With the change yet another course can be added to the courses that currently grant AAS credit.

**Africana Studies**

**Course changes**

1. **Courses dropped**
   
   *None*

2. **Courses added**
   
   *None*

3. **Other changes (number, title, credits, or distribution designation)**
   
   *None*

4. **Changes in description**
   
   **AAS/Theatre 35. Performance (2)**
   
   **Performance in a department-approved production that depicts the black experience. May be repeated for credit. Prerequisite: Department Permission.**
   
   **Rationale:** This small change [that depicts the black experience] will permit interested students to receive Africana Studies credit for the class when the performance features substantial depictions of the black experience.

5. **Impacts of course changes**
   
   The change will increase the number of regularly taught AAS courses.

**Anthropology**

**Course changes**

1. **Courses dropped**
   
   Anth/Cls 180 – Cultures of the Greeks and Romans
   
   **Rationale:** This course has been substantially replaced by other Classical Civilizations courses (such as Clss 52), which cover much of the same ground.

2. **Courses added**
   
   Anth 188 Southeast Asians in Southeast Asia and America
   
   In this course we explore the ways in which different peoples lived in Southeast Asia, why they moved to America, and the ways in which this move affected their cultures. Topics explored include: aspects of their culture, particularly religion and social organizations; motivations for
migrating including war, political, and economic reasons; and their adaptations to America and American responses to their presences. No prerequisites. Tannenbaum. SS
Rationale: I've taught this course once as a first year seminar and twice with a temporary course number. I plan to teach it every other year, alternating with the Peoples of Southeast Asia course (Anth 187).

3. Other changes (number, title, credits, or distribution designation)
   a. ANTH 001 - cross list with Global Citizenship 001 (registrar to check that GCP 001 is ok to use) - SS - Staff (4)
   b. ANTH 120 - Change title of Anth 120 from "Culture and Globalization" to "Anthropology of Globalization" and cross list it with GCP 120 (4). No prerequisites. Vann. SS
   c. ANTH 320 - cross list with Global Citizenship (GCP) (registrar to assign # for the GCP) - SS - Vann (4)
Rationale: a. and c. Rationale: to support Global Citizenship Program
   b. Rationale: MLL has a course with similar title: "Globalization and Culture"
Cross list is to support Global Citizenship Program

4. Changes in description
   None

5. Impacts of course changes
   Addition of Anth 188 will have limited impact, it will decrease the frequency of Peoples of Southeast Asia, but both are area courses and cross listed with Asian Studies. No effect on budget.
   Anth 120: Course content will not change, only title and crosslist. Vann will remain sole instructor for this course. No effect on departmental budget.

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Art and Architecture

Course changes

1. Courses dropped
   Arch/Ciss 204/: Ancient City and Society.
   Rationale: This course is a "holdover" from an earlier period in the Classical Studies Program. David Small has never taught it and is not able to include it in his offerings.

2. Courses added
   Art 69. Special Topics in Art History (1-3 credits)
   Directed projects for students in the history of art or architecture.
   Prerequisites: consent of instructor. May be repeated for credit. (HU)
   Rationale: This course will allow us to offer possibilities for independent study at a lower level than the Art 169 and Art 269. It will also give us more flexibility in assigning a Lehigh equivalent for courses taken at other schools, which we are frequently asked to do, especially for Study Abroad.
3. Other changes (number, title, credits, or distribution designation)
   Art 121: Global Citizenship Program is cross listing this course with their program.
   Rationale: See Global Citizenship Program.

4. Changes in description
   None

5. Impacts of course changes
   This will have no significant impact on faculty time, curriculum, or university resources.

Asia

Course changes
1. Courses dropped
   None

2. Courses added
   ASIA 127. (MLL 127) ORIENTations: Approaches to Modern Asia (4)
   A survey of the rapid economic, political, and social changes occurring in East, South, and Southeast Asian countries. How do the contemporary societies and historical traditions of Asian countries differ from the West? What distinguishes our perspectives on politics, individual liberties, civic responsibility, religious faith, the “pursuit of happiness”? How are Asians represented (or misrepresented) in the West, and how will the ongoing process of globalization change, and be changed by, Asian cultures? (HU)
   Rationale: Corresponds with MLI 127 (Asia 127)—already in the catalog.

   ASIA 165. (GCP 165, MLL 165) Love and Revolution in Shanghai (4)
   This project-based course will examine human relationships and political-economic changes in Shanghai through the lens of literature, film, and a selection of other readings. Students will discuss the conflicts between and influences of pre-communist, communist, and capitalist systems as played out in the Shanghai area. Students will write research papers on aspects of historical or modern Shanghai and present their results to the class. They will also be responsible for blackboard and in-class discussions of assigned readings and films. (HU)
   Rationale: This provides a focused context for students to develop research projects. It also prepares students who may wish to participate in the Lehigh in Shanghai internship program.

   ASIA 188. (Anth 188) Southeast Asians in Southeast Asia and America
   In this course we explore the ways in which different peoples lived in Southeast Asia, why they moved to America, and the ways in which this move affected their cultures. Topics explored include: aspects of their culture, particularly religion and social organizations, motivations for migrating (including war, political, and economic reasons), and their
adaptations to America and American responses to their presences. No prerequisites. Tannenbaum. (H/S)

**Rationale:** This course provides an academic context in which students participating in the Lehigh/Shanghai Internship program can process their experience.

**ASIA 240. (Phil 240) Figures/Themes in Eastern Philosophy (4)**
This seminar course will involve in-depth focus upon a major figure in Eastern thought or upon the Eastern treatment of a particular theme or set of themes. Content varies. May be repeated more than once for credit. (HU)

**Rationale:** Corresponds with Phil 240 (Asia 240)—already in the catalog

**ASIA 386. (GCP 386) Chinese Culture in a Multinational Workplace (3)**
Students explore the interaction between Chinese and non-Chinese cultures at a variety of work sites in the city of Shanghai, a port city that has involved people of many nationalities since its birth in the 1840s. This project-based course involves a faculty mentored practicum at one or more specific sites related to the student's own field or major, assigned readings, weekly electronic blackboard discussions, and a written summary of the experience. (H/S)

**Rationale:** Course taught previously as first-year seminar and experimental. Will be taught every other year.

3. **Other changes (number, title, credits, or distribution designation)**

   None

4. **Changes in description**

   None

5. **Impacts of course changes**

   None

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**Asia**

Course changes

1. **Courses dropped**

   None

2. **Courses added**

3. **Other changes (number, title, credits, or distribution designation)**

   None

4. **Changes in description**

   **ASIA 78. (MLL 78) Asian-American Studies (4)**
   A survey of issues concerning Asians living in the United States from the perspectives of history, language, literature, and film. (HU)

   **Rationale:** The additional option of allowing students to read materials in the original languages provides advanced students an opportunity to develop their language skills in a seminar-like environment.
ASIA 125. (MLL 125) Immortal Images: Traditional Chinese Literature in Translation (4)
Explore age-old themes in literature as diverse as pre-modern novels, ghost stories, poetry, divination manuals, and medical texts. Students interested in setting up a corollary Chinese language component for credit as Chin 251 may discuss this with the professor. (HU)
Rationale: The additional option of allowing students to read materials in the original languages provides advanced students an opportunity to develop their language skills in a seminar-like environment. ASIA 73. (MLL 73, GCP 73, WS 73)

Film, Fiction, and Gender in Modern China (4)
Change in description:
Study of the struggle for an individual "modern" identity out of traditionally defined roles for men and women as depicted by Chinese writers and filmmakers. Class, texts, and films in English. Students interested in setting up a corollary Chinese language component for credit as Chin 251 may discuss this possibility with the professor.
Rationale: The additional option of allowing students to read materials in the original languages provides advanced students an opportunity to develop their language skills in a seminar-like environment.

Impacts of course changes
None

Course changes
1. Courses dropped
None

2. Courses added
   CHIN 252. Business Chinese (1-2)
   Directed readings on the Chinese business environment and business terminology. Emphasis on reading comprehension and translation. May be repeated for credit. Prerequisite: CHIN 112, CHIN 114, or permission of the instructor. Staff. (HU)

   CHIN 253. Chinese Fiction (1-2)
   Students read modern Chinese short stories or a novel. Emphasis on reading comprehension and translation. May be repeated for credit. Prerequisite: CHIN 112, CHIN 114, or permission of instructor. Staff. (HU)

   CHIN 254. Intensive Conversation (1-2)
   Conversational practice based on topical readings. For advanced speakers only. May be repeated for credit. Prerequisite: CHIN 112, CHIN 114, or permission of the instructor. Staff. (HU)
CHIN 255. Newspaper Readings in Chinese (1-2)
Newspaper readings in Chinese. Emphasis on reading comprehension and translation. May be repeated for credit. Prerequisite: CHIN 112, CHIN 114, or permission of the instructor. Staff. (HU)

Rationale: There is a growing need to offer additional upper level courses to serve the growing number of heritage speakers and students returning from study abroad with a good command of Chinese, for whom the existing offerings are insufficiently challenging.

3. Other changes (number, title, credits, or distribution designation)
Add under:
I. Core Courses
   A. Language and Culture:
   Rationale:

4. Changes in description
None

5. Impacts of course changes
The addition of these courses is made possible through reallocation of course material and realignment of faculty effort.

Asia

Course changes
6. Courses dropped
None

7. Courses added
None

8. Other changes (number, title, credits, or distribution designation)
ASIA 19. (GCP 19, PHIL 19, REL 19) Comparative Philosophy: East and West(4)
Rationale: Rationale: Add GCP 19 as cross-list.

9. Changes in description
None

10. Impacts of course changes
None

Asia

Course changes
1. Courses dropped
None
2. **Courses added**  
   None

3. **Other changes (number, title, credits, or distribution designation)**  
   ASFA 145, (GCP 145, REL 145) Islam in the Modern World (4)  
   **Rationale:** Rationale: Add GCP 145 as cross-list.

4. **Changes in description**  
   None

5. **Impacts of course changes**  
   None

**Biological Sciences**

1. **Courses dropped**

**BIOS 370, Plant Molecular Biology**

**Rationale:** We have already dropped the concurrent graduate equivalent course (BIOS 453, Advances in Plant Molecular Biology). Because of low interest and enrollments, we now propose dropping BIOS 370 as well.

**BIOS 152, Ecology**

**Rationale:** We are dropping the crosslisting with EES 152. This course does not have any of our BIOS core courses as prerequisites. However EES 152 and other designated upper level EES courses will continue to be approved elective options for the Biology BA and BS programs

2. **Courses added**

**BIOS 307. Male Reproductive Biology (1-3)**

Molecular, cellular, and genetic aspects of the mammalian male reproductive system.  
Prerequisites: BIOS 120 and consent of instructor (NS)

**Rationale:** This course will allow advanced undergraduates exposure to material concurrently presented at the graduate level (BIOS 425. Male Reproductive Biology (1-3)). No additional TA’s or new resources are needed.

**BIOS 3XX. Species and Speciation (3)**

Consideration of the origin of species. Discussion of a variety of “species” definitions and exploration of the evolutionary mechanisms by which new species arise. Alternation
between lecture and discussion, drawing on the textbook and on current and classical literature. Prerequisite: BIOS 317.

Rationale: This course represents the central professional interests of Dr. Tamra Mendelson, an assistant professor in our department. The course has been taught twice under a temporary number and was approved by the department for regularization.

3. Other changes (number, title, credits, or distribution designation)

Changes to BA with major in Behavioral Neuroscience

Add the following two courses to Major Electives (6):

BIOS 369. Comparative Physiology of Vertebrate Systems (4)
BIOS 385. Neurophysiology and Memory (3)

Rationale: The major electives requirement for BNS was designed to complement the required courses in the BNS program and includes courses in biological sciences, psychology and chemistry. The two courses that we propose to add are new courses taught by recent hires that are particularly appropriate. The Biological Sciences Department has formally approved their proposed addition.

BIOS 356. Human Genetics and Reproduction (3)

Frontiers in human genetics, including simple and complex genetic diseases, cancers. Emphasis on genes and structures that enable reproductive processes; genetic functions of mammalian germ lines. Analysis of current publications. Prerequisite: BIOS 120. (NS)

Rationale: This course is modified to reflect new findings in the field. The prerequisite change reflects our new core requirements. No additional 1A's or resources are needed.

BIOS 251, change "molecular biology" to "the biological sciences." Also add sentence at the end: "May not be used to fulfill Biology BA elective requirements."

BIOS 383, change "biology and molecular biology majors" to "majors in the biological sciences."

Rationale: These changes were made to provide appropriate departmental terminology and to disallow Bios 251 for fulfilling Biology BA elective requirements.

4. Changes in description

BIOS 241, BIOS 317, BIOS 328, BIOS 335, BIOS 337, BIOS 345, BIOS 353, BIOS 356, BIOS 367. Change the prerequisite from BIOS 115 to BIOS 120. Any other prerequisites listed remain the same.

BIOS 161. Change prerequisite from consent of department to BIOS 41 and consent of instructor.
BIOS 202, BIOS 262, BIOS 347. Change prerequisite from consent of department chair to consent of department. Other prerequisites remain the same.

BIOS 234, BIOS 329. Change prerequisite from consent of department to BIOS 120.

BIOS 251. Change prerequisite from consent of department to major status and consent of the department.

BIOS 261. Change prerequisite from consent of department chair to major status and consent of instructor.

BIOS 262. Change prerequisite from junior major, GPA, and consent of department chair to junior major status, GPA, and consent of instructor.

BIOS 313. Change prerequisite from BIOS 234 to BIOS 120.

BIOS 314. Change prerequisite from BIOS 115 & 234 to BIOS 120.

BIOS 324. Change prerequisite from Chem 51, BIOS 115, coreq BIOS 325 to Chem 51 and BIOS 120.

BIOS 368. Change prerequisite from departmental permission required to consent of department. The corequisite of BIOS 367 remains the same.

BIOS 391. Change prerequisite from junior standing to junior standing and consent of instructor.

BIOS 393. Add Prerequisite: consent of instructor.

Rationale: There were several guiding principles in proposing the changes. Some prerequisites needed to be changed to accommodate our new core course, BIOS 120 Biology Core III: Integrative and Comparative. In addition, there are currently 4 types of permissions currently listed under prerequisites: 1. Consent of dept. chair. 2. Consent of dept. 3. Permission of dept. and 4. Consent of instructor. For the sake of simplicity, these were reduced to two. Consent of department will be used when the departmental office is empowered to make decisions about who should be allowed in the course. Consent of the instructor will be used when the instructor needs (or wants) to make those decisions. We also more clearly designated several courses exclusively for majors or upper level majors.

5. Impacts of course changes

None

Program changes
B. Sc. BIOCHEMISTRY Program Changes

Change in course requirements.

1) From:

Chm 205 Main Group Elements (2) and
Chm 194 Physical Chemistry for Biologists (3) or
Chm 187 Physical Chemistry I

To:

Chm 307 Inorganic Chemistry (3) and
Chm 194 Physical Chemistry for Biologists (3)

Rationale: The Chemistry department is changing its curriculum and will drop Chm 205 from the course list. That means students would need to take Chm 307 to have a course in Inorganic Chemistry. While that course is an option for them at the present time, they must take an additional Chemistry course (341) in order to have the prerequisites for Chm 307. The Chemistry Department is changing the content of Chm 194, and will return to teaching it regularly, so that it has the minimum prerequisite content for Chm 307. Chm 187 does not contain that prerequisite content. During the time that Chm 194 has not been offered, students have also been allowed to take BIOS 381 Physical Biochemistry. That course does not contain the prerequisite background for Chm 307 and will no longer count in the Biochemistry program after Chm 194 is again available regularly.

2) From:

Chm 201 Technical writing (2)

To:

Any junior writing course that focuses on communicating science (2 or min)

Rationale: This change is simply regularizing the situation that already exists for the junior writing requirement in Biochemistry.

Resource statement: No additional resources are required for this change.

Chemistry
The Department of Chemistry is proposing to modify its chemistry degrees away from highly structured, single track paths to create a number of options with different foci which we will refer to as the ChemFlex Curriculum. In so doing the department recommends that several courses be dropped and new ones added. An overview and a rationale for the overview related to the proposed changes follow.

**Overview.** The different concentrations share a Common Chemistry Core and one of two paths of the collateral coursework: Path A or Path B. The Concentration Courses define the more specialized components. The degree offerings are a BS in chemistry, a BA in chemistry, and a BS in Pharmaceutical Chemistry (new degree – see additional documentation). We have included the document defining these components for clarity. This proposal includes making permanent the changes we have been experimenting with in the introductory chemistry course and its laboratory, Chem 21, 22 which have been offered the last two years as Chem 95, 96, 97. Also we will combine several of the advanced laboratories into a new Unified Laboratory. The physical chemistry sequence has been modified eliminating two courses and adding two in place of those which is a credit neutral change. All of the above are course changes.

Program changes are as follows. Chem 205 has been removed from the major requirements for BS and BA degrees and Chem 301 has been added except to the Biochemistry major (no changes are made in that program but its description is included to clarify its position in the ChemFlex options). Other program changes from the current BS or BA degrees occur in the individual concentrations and are defined in the Section on Degrees offered in the Comments section. Fundamentally, these program changes are to allow students to concentrate on areas of chemistry without adding to the credits required so some courses are removed that are less germane to the concentration.

**Overview rationale:** Chemistry as a discipline has matured and expanded to bring its expertise into other disciplines and much of the activity of the discipline has moved to the interfaces of chemistry with these other fields. Our proposed changes are being made as an educational recognition of this broadening of our discipline to allow students to take coursework enhancing their education at these interfaces without increasing the course-load for the degrees. In fact, we have made some effort to reduce the total credits for several of the various options. Thus it is recognition that a single curriculum cannot successfully address the increased breadth of the field. We have thus defined a Common Core of knowledge to be taken by all chemistry majors as well as courses required for specialized areas which are quite divergent.

ChemFlex Curriculum in Chemistry
Impact:

A. The ChemFlex Curriculum changes the required course credits in the major for most concentrations down slightly from the current chemistry curriculum as described in the information that follows. In summary,
   i. The ACS certified degree – from 47 to 46
   ii. The BA degree – 35-36 as current
   iii. Pharmaceutical chemistry – from 47 to 50
   iv. Analytical/physical – from 47 to 40
   v. Polymers – from 47 to 43
   vi. Materials – from 47 to 43
   vii. Health Professions – from 47 to 43-44
   viii. Business – from 35-36 to 54-55

B. The faculty load remains unchanged in the course changes described above. That is, the changes are credit neutral for the changes in the introductory chemistry and the physical chemistry and advanced laboratory sequences. No budgetary ramifications or other resource changes are anticipated.

C. No library or instructional technology impact is anticipated.

D. The Department of Materials Science and Engineering (Chair Slade Cargill) has approved the Mat 35 course requirement in the materials chemistry concentration.

E. The College of Business and Economics (Professor Vasconcellos) has approved the incorporation of the Business Minor into the Business Chemistry concentration.

F. The Department of Biological Sciences (Professors Nyby and Lowe-Krentz) has approved the curriculum concentrations which involve their courses but they are concerned about possible load increases to the courses and lab (BioS 41) impacted by the Pharmaceutical chemistry and Health professions concentration options. If these increase the net demand then additional TA help would be needed.

G. The Department of Chemical Engineering (Chair McHugh; and Professor Fuzla) has approved the following which impact their program:
   i. Dropping of Chem 189 and replacing it with Chem 341.
   ii. Change of Chem 192 (2 credits) to Chem 343 (1 credit).

Description:

TABLE: CHEMFLEx CURRICULUM OVERVIEW

<table>
<thead>
<tr>
<th>Requirements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialization</td>
<td>Common Chemistry Core</td>
</tr>
<tr>
<td>----------------</td>
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</tr>
<tr>
<td>y (ACS)</td>
<td></td>
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<tr>
<td>cutical (proposed)</td>
<td></td>
</tr>
<tr>
<td>y - Analytical/Physical</td>
<td></td>
</tr>
<tr>
<td>y - Polymers</td>
<td></td>
</tr>
<tr>
<td>y - Materials</td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td>Common Chemistry Core</td>
</tr>
<tr>
<td>Pharmacy - Business</td>
<td></td>
</tr>
<tr>
<td>y - Health Professions</td>
<td></td>
</tr>
</tbody>
</table>

### Common Core

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chm 75, 76</td>
<td>8 credits</td>
<td>Introductory chemistry</td>
</tr>
<tr>
<td>Chm 025, 026, 026, 31</td>
<td>8 credits</td>
<td>Organic chemistry</td>
</tr>
<tr>
<td>Chm 51, 52, 53, 58</td>
<td>3 credits</td>
<td>Analytical chemistry</td>
</tr>
<tr>
<td>Chm 332</td>
<td>3 credits</td>
<td>Physical chemistry</td>
</tr>
<tr>
<td>See Concentrations</td>
<td></td>
<td>Technical writing</td>
</tr>
<tr>
<td>Chm 201***</td>
<td>2 credits</td>
<td>Undergraduate seminar</td>
</tr>
<tr>
<td>Chm 301§</td>
<td>1 credit</td>
<td>Advanced inorganic chemistry</td>
</tr>
<tr>
<td>Chm 307</td>
<td>3 credits</td>
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</tr>
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</table>

Total credits = 25 credits

### Collateral Requirements

**Path A**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 21</td>
<td>4 credits</td>
<td>Calculus I</td>
</tr>
<tr>
<td>Math 22</td>
<td>4 credits</td>
<td>Calculus II</td>
</tr>
<tr>
<td>Math 23</td>
<td>4 credits</td>
<td>Calculus III</td>
</tr>
<tr>
<td>Math 205</td>
<td>3 credits</td>
<td>Linear methods</td>
</tr>
<tr>
<td>Phys 11,12</td>
<td>5 credits</td>
<td>Introductory Physics I and lab</td>
</tr>
<tr>
<td>Phys 21,22</td>
<td>5 credits</td>
<td>Introductory Physics II and lab</td>
</tr>
<tr>
<td>Eng 1 or CSC 12</td>
<td>3 credits</td>
<td>Survey of Computer Science</td>
</tr>
</tbody>
</table>

Total credits = 28

**Path B**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>Math 51</td>
<td>4 credits</td>
<td>Survey of Calculus I</td>
</tr>
<tr>
<td>Math 52</td>
<td>3 credits</td>
<td>Survey of Calculus II</td>
</tr>
<tr>
<td>Math 43</td>
<td>3 credits</td>
<td>Survey of Linear Methods</td>
</tr>
<tr>
<td>Phys 10,12</td>
<td>5 credits</td>
<td>General Physics I and lab</td>
</tr>
<tr>
<td>Phys 13,22</td>
<td>4 credits</td>
<td>General Physics II and lab</td>
</tr>
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</table>

Total credits = 19

### Degrees offered

**BS Chemistry (ACS certified Degree)**

Common core, Path A, and the following
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chm 343</td>
<td>1 credits</td>
<td>Physical chemistry laboratory</td>
</tr>
<tr>
<td>Chm 341</td>
<td>4 credits</td>
<td>Physical chemistry I</td>
</tr>
<tr>
<td>Chm 342</td>
<td>4 credits</td>
<td>Physical chemistry II</td>
</tr>
<tr>
<td>Chm 334</td>
<td>5 credits</td>
<td>Advanced chemistry laboratory I</td>
</tr>
<tr>
<td>Chm 335</td>
<td>3 credits</td>
<td>Advanced chemistry laboratory II</td>
</tr>
<tr>
<td>Chm 371</td>
<td>3 credits</td>
<td>Elements of biochemistry I</td>
</tr>
<tr>
<td>Advanced chemistry elective</td>
<td>3 credits</td>
<td></td>
</tr>
</tbody>
</table>

Total credits = 21

Comments: This degree is identical to the current ACS certified degree with the addition of the undergraduate seminar and the removal of Chm 205

**BA Chemistry**

Common core, Path A or B, and the following

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chm 341 or Chm 194</td>
<td>3-4 credits</td>
<td>Physical chemistry</td>
</tr>
<tr>
<td>Chm 343</td>
<td>1 credits</td>
<td>Physical chemistry laboratory</td>
</tr>
<tr>
<td>Chm elective</td>
<td>3 credits</td>
<td></td>
</tr>
</tbody>
</table>

Total = 7-8

Comments: Added to this degree that are not in the current BA degree

Math 12 and Undergraduate seminar

Removed from this degree that are in the current BA degree

Computer course, Math 205, 1-2 credits of chem.

Electives

**Specializations**

**BS Pharmaceutical Chemistry**

Common core, Path A or B, and the following

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chm 194 (or Chm 341)</td>
<td>3 credits</td>
<td>Physical Chemistry for Biological Sciences</td>
</tr>
<tr>
<td>Chm 358</td>
<td>3 credits</td>
<td>Advanced organic</td>
</tr>
<tr>
<td>Chm 371</td>
<td>3 credits</td>
<td>Elements of biochemistry I</td>
</tr>
<tr>
<td>Chm 372</td>
<td>3 credits</td>
<td>Elements of biochemistry II</td>
</tr>
<tr>
<td>Chm 3__</td>
<td>3 credits</td>
<td>Advanced chemistry elective</td>
</tr>
<tr>
<td>BioS 41, 42</td>
<td>4 credits</td>
<td>Cellular and molecular biology</td>
</tr>
<tr>
<td>BioS 115</td>
<td>3 credits</td>
<td>Genetics</td>
</tr>
<tr>
<td>Math 12**</td>
<td>4 credits</td>
<td>Statistics</td>
</tr>
</tbody>
</table>

Total credits = 26

**BS Chemistry - Analytical/Physical Concentration**

Common core, Path A, and the following

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chm 343</td>
<td>1 credits</td>
<td>Physical chemistry laboratory</td>
</tr>
<tr>
<td>Chm 341</td>
<td>4 credits</td>
<td>Physical chemistry I</td>
</tr>
<tr>
<td>Chm 342</td>
<td>4 credits</td>
<td>Physical chemistry II</td>
</tr>
</tbody>
</table>
Chm 334  3 credits  Advanced chemistry laboratory I
Chm 335  3 credits  Advanced chemistry laboratory II
Total credits = 15
Comments: This is the ACS degree without the advanced Chm elective and Chm 371

BS Chemistry – Polymers Concentration
Common core, Path A, and the following
Chm 341  4 credits  Physical chemistry I
Chm 342  4 credits  Physical chemistry II
Chm 343  1 credits  Physical chemistry laboratory
Chm 388  3 credits  Polymer synthesis and characterization lab
Chm 393  3 credits  Physical polymer science
Chm 394  3 credits  Organic polymer science
Total credits = 18
Comments: This is the ACS degree without the Advanced chemistry laboratory I and II and Chm 371 which are replaced by polymer concentration courses.

BS Chemistry – Materials Concentration
Chm 343  1 credits  Physical chemistry laboratory
Chm 341  4 credits  Physical chemistry I
Chm 342  4 credits  Physical chemistry II
Chm 334  3 credits  Advanced chemistry laboratory I
Chm 335  3 credits  Advanced chemistry laboratory II
Mat 33  3 credits  Engineering materials and processing
Total credits = 18
Comments: This is the ACS certified BS degree minus Chm 371 and an advanced Chm elective and addition of Mat 33.

BA Chemistry - Business Concentration
Common core, Path A or B, and the following
Chm elective  3 credits
Chm 341 or Chm 194  3-4 credits  Physical chemistry
Chm 343  1 credit  Physical chemistry laboratory
Eco 1  4 credits  Principles of economics
Bus 125  1 credits  Behavioral skills workshop
Bus 126  3 credits  Information analysis and financial decision making I
Bus 127  3 credits  Information analysis and financial decision making II
Bus 225  3 credits  Developing, producing, and marketing products and services I
Bus 226 3 credits Developing, producing, and marketing products and services II.
Bus 326 1 credit Business strategy
Math 12 4 credits Statistics

Total credits = 29.30
Comment — This is the BA Chemistry degree with the Business minor. Admission to the Business minor program is controlled by the Business College.

**BA Chemistry – Health Professions Concentration**
Common core, Path A or B, and the following

Chm elective 3 credits
Chm 341 or Chm 194 3-4 credits Physical chemistry
Chm 343 1 credit Physical chemistry laboratory
EES 31, 32 4 credits Introduction to Environmental and Organismal Biology
BioS 41 4 credits Biology Core I: Molecular and Cellular Biology
Math 12** 4 credits Statistics

Additional courses in Biological Sciences are recommended.

Total credits = 18-19
Comments: This is the BA Chemistry degree with the two biology courses required for medical school.

* Chm 301 may be substituted by any course having a major presentation component with the approval of the major advisor.
** Math 12 may be substituted by any statistics course.
*** Other writing intensive courses may be substituted with the approval of the advisor but should have a science focus.
**** Chm 301 is not required for the Biochemistry degree.

**Rationale:** The creation of the ChemFlex curriculum in Chemistry permits flexibility so that a student could specialize in a variety of areas.
BS in Pharmaceutical Chemistry

Impact: This new degree program is being created in conjunction with the changes in the chemistry degree program which entails designation of a Common Core, two paths for collateral requirements, and courses constituting a Concentration in a particular area of chemistry. There are BS and BA degrees in Chemistry with different Concentrations. In the area of Pharmaceutical Chemistry the chemistry faculty believe it has the requirements of a BS degree but the intentional absence of a year of physical chemistry does not fit the concept of a classical chemistry degree. Hence, though the degree should be viewed as part of the above Common Core and Concentration, it will be structured as a new degree.

Thus the courses required are part of the presently taught curriculum and do not have a faculty load impact. They include changes in the advanced laboratory requirements but these do not involve an increase to either student credit load or faculty teaching load. While the curriculum changes are hoped to increase the number of “chemistry” majors, the anticipated increase will not require additional resources in terms of courses, sections, or classroom space, and will only modestly increase laboratory supplies requirements unless the increased enrollment is well beyond our expectations.

Description:

Proposed Pharmaceutical Chemistry Major Program: 50 credits

Required courses: 69-78 credits

Common core: 25 credits

Chm 75, 76 (or Chm 25, 26, 31) 8 credits  Introductory chemistry
Chm 51, 52, 53, 58 8 credits Organic chemistry
Chm 332 3 credits Analytical chemistry
Chm 201 2 credits Technical writing
Chm 301 1 credit Chemistry seminar
Chm 307 3 credits Advanced inorganic chemistry
Specialization courses: 33 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chm 194</td>
<td>3</td>
<td>Physical chemistry for biological sciences</td>
</tr>
<tr>
<td>Chm 358</td>
<td>3</td>
<td>Advanced organic chemistry</td>
</tr>
<tr>
<td>Chm 371</td>
<td>3</td>
<td>Elements of biochemistry I</td>
</tr>
<tr>
<td>Chm 372</td>
<td>3</td>
<td>Elements of biochemistry II</td>
</tr>
<tr>
<td>Chm 3--</td>
<td>3</td>
<td>Chemistry elective</td>
</tr>
<tr>
<td>BioS 41</td>
<td>3</td>
<td>Biology Core I: Cellular and molecular biology</td>
</tr>
<tr>
<td>BioS 42</td>
<td>1</td>
<td>Biology Core II: Cellular and molecular lab</td>
</tr>
<tr>
<td>BioS 115</td>
<td>3</td>
<td>Biology Core II: Genetics</td>
</tr>
</tbody>
</table>

Collateral requirements – Either path may be taken.

Path A: 32 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 21</td>
<td>4</td>
<td>Calculus I</td>
</tr>
<tr>
<td>Math 22</td>
<td>4</td>
<td>Calculus II</td>
</tr>
<tr>
<td>Math 23</td>
<td>4</td>
<td>Calculus III</td>
</tr>
<tr>
<td>Math 205</td>
<td>3</td>
<td>Linear methods</td>
</tr>
<tr>
<td>Math 12</td>
<td>4</td>
<td>Statistics</td>
</tr>
<tr>
<td>Phy 11,12</td>
<td>5</td>
<td>Introductory physics I and lab</td>
</tr>
<tr>
<td>Phy 21,22</td>
<td>5</td>
<td>Introductory physics II and lab</td>
</tr>
<tr>
<td>Engr 1 or CSE 12</td>
<td>3</td>
<td>Survey of computer science</td>
</tr>
</tbody>
</table>

Path B: 23 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 51</td>
<td>4</td>
<td>Survey of Calculus I</td>
</tr>
<tr>
<td>Math 52</td>
<td>3</td>
<td>Survey of Calculus II</td>
</tr>
<tr>
<td>Math 43</td>
<td>3</td>
<td>Survey of Linear Methods</td>
</tr>
<tr>
<td>Math 12</td>
<td>4</td>
<td>Statistics</td>
</tr>
<tr>
<td>Phys 10,12</td>
<td>5</td>
<td>General physics I and lab</td>
</tr>
<tr>
<td>Phys 13,22</td>
<td>4</td>
<td>General physics II and lab</td>
</tr>
</tbody>
</table>

Rationale: The pharmaceutical industry is focused on exploring the biochemistry of disease and designing or finding drugs to cure or ameliorate disease. Biochemists, organic chemists, biologists, and chemical engineers collaborate to achieve this end. The majority of chemists hired today go into the pharmaceutical industry. Pharmaceutical chemistry is a chemistry degree option which focuses on core chemistry, biochemistry, and molecular biology to prepare students for careers in this field. Since it is a highly interdisciplinary field it requires the breadth of knowledge offered by this degree program.
<table>
<thead>
<tr>
<th>Courses Dropped</th>
<th>New Courses Added</th>
<th>Course or Program Change</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chm 21(4) + Chm 22(1)</td>
<td>Chm 25(4) + Chm 26(1)</td>
<td>Course change</td>
<td>New way of presenting introductory course in chemistry which uses a studio/lab format in Chm 25 and 1 credit sidebar course dealing with biochemical applications of introductory chemistry.</td>
</tr>
<tr>
<td>Chm 187(3) + Chm 192 (2)</td>
<td>Chm 342(4) + Chm 343(1)</td>
<td>Course change</td>
<td>Chm 342 is Chm 187 with the inclusion of statistical thermodynamics. Physical chemistry laboratory course which was WI when numbered as Chm 192(2) would not be WI when numbered as Chm 343(1).</td>
</tr>
<tr>
<td>Chm 189 (3)</td>
<td></td>
<td>Course change</td>
<td>Chm 189 was part of Chemical Engineering curriculum; most of material of this course will now be part of Chm 342; Chemical Engineering curriculum will now require Chm 341 in place of the dropped Chm 189.</td>
</tr>
<tr>
<td></td>
<td>Chm 345(3)</td>
<td>Course change</td>
<td>The creation of this course will allow a graduate student to take Chm 342 without being required to attend recitations.</td>
</tr>
<tr>
<td>Chm 209(3) + Chm 381(3) + Chm 382(3) + Chm 385(3)</td>
<td></td>
<td>Course change</td>
<td>Chm 209 is no longer required in Mat. Sci. &amp; Engr. Curriculum. Chm 381 when offered recently has had an enrollment of 0-1 student. Chm 382 and Chm 385 have not been offered for several years.</td>
</tr>
<tr>
<td></td>
<td>Chm 301(1)</td>
<td>Course and program change</td>
<td>A new chemistry seminar will be required in the chemistry curriculum.</td>
</tr>
<tr>
<td>Chm 338(2) + Chm 339(2) + Chm 353(2)</td>
<td>Chm 334(3) + Chm 335(3)</td>
<td>Course change</td>
<td>The changes involve a repackaging of existing courses with the introduction of new material.</td>
</tr>
</tbody>
</table>
Course changes for **Chm 21 + 22 / Chm 25 + 26**

1. **Courses dropped** from the catalog.
   A. Chm 21  Introductory chemistry (4) To be replaced by Chm 25 and 26.
   B. Chm 22  Introductory chemistry laboratory (1)
   **Rationale:** These courses will be replaced by Chm 25 (4) and Chm 26 (1).

2. **Courses added** to the catalog.
   B. Chm 025  4 credits *Introduction to chemical principles*
   **Description:** An introduction to important topics in chemistry: atomic structure, properties of matter, chemical reactions, energy, structure and bonding in organic and inorganic compounds, chemical equilibrium. The course features a lecture tightly linked to a three-hour studio experience that combines laboratory work and recitation. Chemistry 26 must be taken concurrently for students in the Arts and Sciences College. No prerequisites. Instruction by chemistry faculty.
   **Distribution:** NS
   **Rationale:** This course has been in place as an experimental course replacing Chm 21, 22 since fall of 2004. Two hours of lecture and three hours of studio laboratory allows for a much more interactive, group learning environment for the students.

   B. Chm 026  1 credit *Biochemical applications of chemical principles*
   **Description:** An exploration of introductory chemistry-related topics relevant to biological topics such as elements required by living systems, the transformation of inorganic molecules to organic compounds, properties of water related to the development of life, equilibria, acids, bases, and buffers in living systems and medical conditions, thermodynamics of living systems, and protein structure and the role of protein in nutrition, genetic diseases, cancer and disease therapy. No prerequisites, co-requisite Chm 025. Instruction by chemistry faculty. Distribution-NS
   **Rationale:** This course is taken by students enrolled in Chm 025 with the purpose of learning some of the chemical principles of introductory chemistry through examples directly related to their future major interest area.

3. **Other changes.** None

4. **Changes in description.** None

5. **Impacts of course changes**
Chm 25 involves a studio/laboratory. Chemistry faculty are committed to participating in this activity. Four new faculty members have recently joined the Chemistry Department so that sufficient teaching personnel are available.

The Department of Chemistry (2/8)

Course changes for Chm 187 + 192 / Chm 342 + 343

1. Courses dropped from the catalog.
   A. Chm 187  Physical Chemistry I (3)
   B. Chm 192  Physical Chemistry Laboratory (2)
   Rationale: Chm 187 will become the major part of Chm 342 (4) and Chm 343 (1) will replace Chm 192(2) with the difference being Chm 343 will not be writing intensive.

2. Courses added to the catalog.
   A. Chm 342  Physical Chemistry II. Thermodynamics and Kinetics (4 credits)

   This course would have 3 one-hour lectures and 1 one-hour recitation each week which could be used as an actual recitation or used for lecturing.

   Description: Development of the principles of classical and statistical thermodynamics and their application to chemical systems. In classical thermodynamics emphasis will be on systems in which composition is of major concern: solutions, chemical and phase equilibria, and electrochemistry. Kinetic theory of gases; chemical reaction kinetics; chemical reaction dynamics. Prerequisites – Chm 341. Instruction by chemistry faculty. Distribution = NS

   Rationale: A year of physical chemistry for the undergraduate student majoring in chemistry is typically taken in the junior year at other universities. The first course most commonly focuses on quantum chemistry, chemical bonding and spectroscopy. The second course deals typically with thermodynamics, statistical mechanics, kinetics, and some special topics. We propose to adopt the same sequence at Lehigh. The first course Physical Chemistry I: Molecular Structure, Bonding and Dynamics in the Fall would be a microscopic treatment of matter focusing on quantum chemistry, symmetry, group theory, and spectroscopy (currently Chm 341 – our second course). The second course Physical Chemistry II: Thermodynamics and Kinetics in the Spring would have a more macroscopic character focusing on classical and statistical thermodynamics, electrochemistry, kinetic theory and chemical kinetics. The proposed course changes are
credit neutral, i.e. 9 credits of physical chemistry at present and 9 credits proposed (including the laboratory course Chm 343 described below). The change from the 100 to 300 level is accompanied by a movement from the sophomore to the junior year in the course sequence.

B. Chm 343 Physical chemistry laboratory (1 credit)

Description: Laboratory studies that illustrate and extend the various fields of study in experimental physical chemistry as discussed in Chm 341 and Chm 342. Prerequisite: Chm 194 or CHE 210; or prerequisite Chm 341 and corequisite Chm 342. Instruction by chemistry faculty. Distribution = NS.

Note: This course would no longer fulfill the junior year writing intensive course requirement in CAS.

Rationale: See rationale under Chm 342 Physical Chemistry II.

3. Other changes. None

4. Changes in description. None

5. Impacts of course changes

The physical chemistry course changes are credit neutral for a chemistry major.

The Department of Chemistry (3/8)

Course changes for Chm 189

1. Courses dropped from the catalog.

Chm 189 Physical Chemistry II (3)

Rationale: The material of Chm 189 will become part of Chm 342. Chm 189 was required in the Chemical Engineering curriculum whereas now Chm 341 will be required in its place.

2. Courses added to the catalog.

None

3. Other changes. None

4. Changes in description. None

5. Impacts of course changes

The course Chm 189, required by chemical engineering previously, will be dropped. Chemical Engineering will take the new Chm 341 Physical Chemistry I in place of Chm 189.
Course changes for Chm 345

1. **Courses dropped** from the catalog.
   None

2. **Courses added** to the catalog.
   Chm 345  *Thermodynamics and kinetics* (3 credits)
   **Description:** Development of the principles of classical and statistical thermodynamics and their application to chemical systems. In classical thermodynamics emphasis will be on systems in which composition is of major concern: solutions, chemical and phase equilibria, and electrochemistry. Kinetic theory of gases; chemical reaction kinetics; chemical reaction dynamics. Prerequisite: Department permission required. This course is intended as a course for graduate students achieving their proficiency in physical chemistry and will consist of the lectures only of Chm 342.
   **Rationale:** This course will be designated as the course for Chemistry graduate students to demonstrate proficiency in the area of physical chemistry. This has been done to create a three credit course in line with the other proficiency courses in the department. The faculty believe it will be less confusing than a single course that has variable credits. The graduate would be attending the recitations.

3. **Other changes.** None

4. **Changes in description.** None

5. **Impacts of course changes**
   A faculty member who teaches Chm 343 will also have graduate students enrolled in Chm 345 attending the lectures.

The Department of Chemistry (5/8)

Course changes for Chm 209 + 381 + 382 + 385

1. **Courses dropped** from the catalog.
   A. Chm 209  Chemistry of Organic and Inorganic Materials (3)
   B. Chm 381  Radiation and Structure (3)
   C. Chm 382  Spectroscopy and Photochemical Kinetics (3)
   D. Chm 385  Physical Chemistry of Printing Inks (3)
Rationale: Chm 209 was once required by Materials Science and Engineering majors but that is no longer the case; Chm 381 when listed in recent years as being offered has attracted 0-1 students; Chm 382 & Chm 383 have not been offered for several years.

2. **Courses added** to the catalog.
   None

3. **Other changes**.
   None

4. **Changes in description**.
   None

5. **Impacts of course changes**
   None

The Department of Chemistry (6/8)

**Course changes for Chm 301**

1. **Courses dropped** from the catalog.
   None

2. **Courses added** to the catalog.
   Chm 301: *Chemistry Seminar* (1 credit)
   
   **Description**: A course designed for seniors will involve the literature research of a topic of the student’s choosing followed by a 35 minute oral presentation to the class and professor.
   Prerequisite: Senior standing. Instruction by chemistry faculty. Distribution = NS.
   
   **Rationale**: The Chemistry faculty feel that a one credit seminar focusing on the studying the chemical literature will allow the student an opportunity to work on exercises related to improving their written and oral presentation skills.

3. **Other changes**. None

4. **Changes in description**. None

5. **Impacts of course changes**
   The Chemistry Department has 4 new faculty members so that sufficient faculty are available to offer this new 1 credit course.
The Department of Chemistry (7/8)

Course changes for Chm 338 + 339 + 353 / Chm 334 + 335.

1. **Courses dropped** from the catalog.
   A. Chm 338  Instrumental Analysis Laboratory (2)
   B. Chm 339  Instrumental Analysis (2)
   C. Chm 353  Advanced Organic Analysis Laboratory (2)
   **Rationale:** Chm 338(2) + Chm 339(2) + Chm 353(2) will be replaced by Chm 334(3) + Chm 335(3).

2. **Courses added** to the catalog.
   A. Chm 334 *Advanced Chemistry Laboratory I* (3 credits)
      **Description:** Exploration of synthetic methods and analysis techniques for inorganic and organic compounds. Determination of product structures and quantitative analysis using modern chemical analysis techniques, including NMR, GC-MS, GC, HPLC, FT-IR, and XPS. Taught by Chemistry faculty.
      **Prerequisites:** one year of organic chemistry. **Pre- or co-requisite:** CHM 332  Distribution = NS
      **Rationale:** The department currently teaches two laboratories in Instrumental Analysis (Chm 338) and Organic Analysis Laboratory (Chm 353) with the accompanying lecture material (Chm 339) and needs to add a laboratory in inorganic Chemistry for American Chemical Society certification. These courses contain some redundancy and foster an intellectual separation of the disciplines which is artificial. The unified laboratory can add content and the necessary inorganic chemistry without adding to the course load by improved efficiency and integration.
   B. Chm 335 3 credits *Advanced Chemistry Laboratory II*
      **Description:** Content related to Chm 334. Prerequisite-Chm 51, 52, 53, 58, and 332. Instruction by chemistry faculty. Distribution = NS
      **Rationale:** See Chm 334

3. **Other changes.** None

4. **Changes in description.** None

5. **Impacts of course changes**
   The changes involved with introduction of the two new advanced chemistry laboratories are credit neutral for a chemistry major.
Course changes for **Chim 341**

1. **Courses dropped** from the catalog.
   None

2. **Courses added** to the catalog.
   None

3. **Other changes.** None

4. **Changes in description.**
   Chim 341. Physical Chemistry I: Molecular Structure, Bonding and Dynamics
   (4 credits)
   
   **Description:** Nature of chemical bonding as related to structure and properties of molecules and extended systems. Quantum chemistry of atoms and molecules applied to chemical transformations and spectroscopic transitions. Symmetry analysis and selection rules. Computational and spectroscopic lab involving acquisition and interpretation of electronic, vibrational and rotational spectra. Prerequisites: Phy 13 or 21, Math 205 or Math 43. Distribution = (NS)

   **Rationale:** A year of physical chemistry for the undergraduate student majoring in chemistry is typically taken in the junior year at other universities. The first course most commonly focuses on quantum chemistry, chemical bonding and spectroscopy. The second course deals typically with thermodynamics, statistical mechanics, kinetics, and some special topics. We propose to adopt the same sequence at L'Chigh. The first course Physical Chemistry I: Molecular Structure, Bonding and Dynamics in the Fall would be a microscopic treatment of matter focusing on quantum chemistry, symmetry, group theory, and spectroscopy (currently Chim 341 – our second course).

5. **Impacts of course changes**
   None
Classes

Course changes

1. Courses dropped

Clss 108: Ancient Technology
*Rationale*: David Small has not taught the course for about fifteen years and is simply no longer able to include it in his offerings.

Clss 152/Hist 152/WS 152: Women in Antiquity
*Rationale*: Robert Phillips has not taught this course for more than sixteen years. He is not able to include it in his offerings.

Clss/Anth 180: Cultures of the Greeks and Romans
*Rationale*: This course has been substantially replaced by other Classical Civilizations courses (such as Clss 32 Classical Epic), which cover much of the same ground.

Clss/Arch 204: Ancient City and Society
*Rationale*: This course is a “holdover” from an earlier period in the Classical Studies Program. David Small has never taught it and is not able to include it in his offerings.

2. Courses added

*None*

3. Other changes (number, title, credits, or distribution designation)

*None*

4. Changes in description

*None*

5. Impacts of course changes

*Since* the above-listed courses being dropped have not been offered in many years, these changes will have no real impact on the curriculum or on teaching loads.
Computer Science

Program Changes

Program Change: Description of proposed change(s):
No longer require Math 230 Numerical Methods and CSE 302
Compiler Design. No longer require a “hardware” technical elective.
Reduce the requirement for professional electives from 9 credits to 6
credits. Require that 12 credits of professional and technical electives
be in computer science.

Rationale: First, numerical methods is no longer central to computer
science, nor is compiler design. Second, we wanted to ease the credit
requirements for the program. Third, we need to require 12 CSE
elective credit to satisfy accreditation requirements.

Academic Impact Statement:
Is this proposed program change interdisciplinary?
No.

Identify any known effects of the proposed program change on other
programs at the University.
None.

If there are known effects, individuals in charge of the affected
programs must be consulted about the proposed program change and
the following information provided:
N/A

Who was consulted?
Is the proposed program change acceptable to the affected programs?
Will any changes be required in the affected programs? If so
describe.
Identify any known effects of the proposed program change on the
University’s commitment to diversity.
None
No Resource Impact.
Design Arts

Course changes
6. Courses dropped
   None

7. Courses added
   DES 182: Experimental Video and Animation (3)
   An exploration of time, motion and interactivity in a series of conceptual and technical projects dealing with advanced digital imaging and non-linear video editing. We will consider the interaction of image, sequence, motion, animation, and audio with video.
   Prerequisites: ART/DES 3. Department Permission. Anna Chupa. (F)

Rationale: The Design Arts Computer Imaging concentration sequence (DES 80, 180 and 280) is structured around 3D modeling, animation and compositing. For students interested in film, video installation and 2D animation, 3D material may or may not be relevant. A student who has the basic 3D modeling skills can use this course for experimental work that is less focused on industry and more like independent film. Opportunities for collaborative works, performance and video installations can be developed in the context of this course. A 3D animation student completing this course will have a broader portfolio reel of sequential art in lieu of one which is exclusively 3D.
   Students who have not taken DES 80-180-280 will learn non-linear video editing, editing through the camera, rotoscoping and animation of two dimensional images they create either through photography, stop action sets (clay, sand...), or painting. File management, retrieval, archiving and portfolio issues will be addressed as well as formatting for DV, DVD and web delivery.

8. Other changes (number, title, credits, or distribution designation)
   None

9. Changes in description
   None

10. Impacts of course changes
    As Director of the Design Arts program faculty member Anna Chupa teaches two courses for Design and one course for Art & Architecture. DES 182 will be one of the two courses she will teach for Design (along with DES 68 Color Theory). DES 182 will replace Art/DES 53 as the fourth required course in the Computer Imaging concentration. Art/DES 53 will become a concentration elective for the computer imaging concentration in lieu of a requirement.
    The necessary equipment additions for the Wilbur Powerhouse Lab were made with Chupa’s start-up funding and the addition of this course was discussed during negotiations for her hire. Without a course in two-
dimensional time-based media, there is a significant gap in the Computer Imaging concentration. The proposed course is a modification of a provisional course Anna Chupa and Doug Mason team-taught during the spring semester 2005. One section per year will be offered. DES 182 will be a concentration elective for the other design concentrations. To date the library has purchased several independent films and the library print resources are strong in this area. Assuming this support continues, no additional impact is anticipated.

Program Changes

ART/DES 53 Graphic Design I will be changed to a "concentration elective" instead of a "concentration requirement" for the computer imaging concentration.

Rationale: Graphic Design I is required for the Graphic Design concentration but is not appropriate as a core required course in Computer Imaging.

Impact:

With released time from one course to direct the Design Arts program, I teach 3 studios per year. My creative research interests are in 1) Digital Photography, 2) Color Theory and the Color Managed Workflow, and 3) Experimental Video and Animation.

With the departure of Professor of Practice, Doug Mason, the Photography concentration in Art & Architecture will be split into Wet (Darkroom) and Dry (Digital) Media. Instead of hiring a new professor of practice in photography, I will take over Digital Photography (Art 177) and an adjunct will teach darkroom processes in Art 77. Course frequency will remain the same: Art 177 is taught once per year in the spring. Color Theory is one of several courses that can meet a requirement in Design Theory. Because we are streamlining the current program, other theory courses will be offered less frequently and color theory will be taught both semesters. At no point have we (Design Arts and Art & Architecture) considered 3 sections in Color Theory, so no reduction in frequency is anticipated.

Finally, I piloted the Experimental Animation and Video course last spring. We anticipate that this course together with Art 177 will take some of the pressure off of wait lists for other discipline-specific courses.

Graphic Design I (Art/DES 53) is typically offered during the spring and fall semesters. In addition to serving the needs of design majors pursuing a graphic design concentration, we have multiple minors from students majoring in marketing, architecture and art. By changing the status from a "required" to an "elective" concentration course for the digital imaging concentration, students who enroll are the ones most interested in the course. The proposed video course is a more appropriate option (than Art/Des 53) for Computer Imaging students and also offers fine artists and architects options for developing new media skillsets.
Department of Earth and Environmental Sciences

Program changes for Earth and Environmental Sciences (EES)

Summary. We have designed a major reorganization of our undergraduate curriculum with the goals of improving introductory-level science instruction, more effectively recruiting science majors, better managing course enrollments, and bringing our B.S. degree into alignment with our departmental mission* and the composition of our faculty. As the fields of geology, environmental science, and ecology evolve and merge in response to societal needs, our new B.S. degree should better prepare students for future developments in the job market and in higher education. We feel that this new degree is distinctive and will help us in the coming years to recruit students to Lehigh and to add instructional innovations at all levels. The main element of this reorganization involves a redirection of faculty effort to the introductory level by dropping a number of advanced courses and adding a number of topical introductory courses.

Background. We currently offer three significantly different B.S. degrees that encompass some 20-30 majors (we also have an equal number of B.A. majors). In support of these three degrees, we have come to offer 35 courses at the 100-300 levels, while serving some 750-800 students per year at the introductory level, mostly in a few large-lecture courses enrolling 100 or more students. Nearly all our 50 B.A. + B.S. majors are recruited from this pool after their arrival at Lehigh.

Overview of Revisions. It is important to know that EES houses a diverse mix of disciplines, including geology and ecology, that traditionally are housed in different departments. We have made a first-principles effort to build a single integrated B.S. degree. This degree will involve annual offerings of fewer, more integrated courses, and this should lead to sustainable enrollments that reach critical mass. We will divert the instructional effort that is freed up to the introductory level, offering a larger number of smaller topical courses. The specific content covered by these courses will vary but will inevitably cover a good fraction of the material our more traditional courses had previously offered, but with better context. However the main purpose of these topical courses will be to engage students in science in a more interactive, smaller-class setting. We will continue to offer several courses in large-lecture format, for students that prefer this format and to ensure that students can meet College and University requirements. All

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* EES Mission Statement (2000)

The mission of Lehigh's Department of Earth and Environmental Sciences is to stimulate inquiry and learning about the fundamental physical, chemical, geological, and biological processes that shape Earth's natural environment. We seek to promote understanding of Earth systems and their components by integrating geological and biological views of how these systems function and interact. The fundamental mission of the department lies in basic research and field-based, experiential, and multidisciplinary education, but we actively cooperate with other students and scholars at Lehigh to examine the broader ramifications of human interaction with the environment.
introductory-level courses will be offered for three credits and will share access to an integrated stand-alone lab course (EES 022).

To handle the introductory laboratory experience that is important for both potential majors and undergraduates fulfilling their science requirements, we are developing a one-credit integrated lab course that will complement our topical introductory courses. It will be offered specifically with introductory and non-major students in mind, and will require one of our gateway courses as either a pre-requisite or co-requisite. Like the topical courses themselves, the main goal of this lab course is more about student engagement, important processes and principles that arise in complex natural systems, and styles of investigation, than it is about a comprehensive survey.

Finally, we will also offer a one-credit standalone discussion course that examines the scientific perspective on environmental issues. This will take the place of the recitations currently embedded within EES 2 and EES 3 that served to bring these courses to four credits.

Organized in this way, CAS and CBE students will still be able to meet distribution requirements in effectively the same way that many of them currently do. CAS students can take any two EES "gateway courses" at the introductory level for six credits, the one-credit complementary lab course to get their lab requirement in a setting designed for them, and then their eighth credit using the standalone discussion course. CBE students would simply need to take any one three-credit "gateway" course at the introductory level.

We will handle preparation of our B.A. and B.S. majors by requiring a vertical three-course core sequence that spans the 100, 200, and 300 levels. This will build esprit de corps among majors and will ensure the training needed by more advanced courses and the degree programs themselves. The 100-level course will review Earth systems, the 200-level course will examine the co-evolution of life and the environment throughout Earth history, and the 300-level course will be an integrative senior seminar. To provide students with a faster start in the major, we are transferring the core training away from the old EES 21-31 sequence at the introductory level to the new 100-level Earth systems course. The content offered in the gateway courses, the integrated lab, and the Earth-systems course will cover much of what was covered previously in the EES 21-31 sequence of survey courses.

The B.S. degree will be new; the B.A. degrees and minors require modification to reflect new courses. Here is the core set of requirements for the various degrees:

**Minor in Earth and Environmental Sciences (15 credits)**

EES 22, the EES integrated introductory lab (1), plus other EES courses to bring the total earned in EES to 15 credits.
Bachelor of Arts in Earth and Environmental Sciences (40 credits)

- Collateral sciences (at least 8 credits):
  
  - 1 semester of math equivalent to MATH 12 or above for at least 4 credits
  - 1 additional course from Chemistry, Math, or Physics, approved by advisor, for at least 4 credits.

- Gateway Sequence (at least 4 credits):
  
  - Any introductory course in EES (except EES 4 and EES 22)
  - Integrated introductory laboratory course (EES 22)

- Core sequence in EES major (12 credits):
  
  - EES 100 – Earth Systems Science
  - EES 200 – Earth History
  - EES 380 – Senior Seminar in EES

- Writing-Intensive Requirement:
  
  - Completion of a designated writing-intensive during the Junior year, preferably within EES (one designated 200-level course will be offered each semester)

- Major electives (at least 4 courses for at least 16 credits).
  
  - Select from EES or cross-listed offerings at the 100 through 300 levels
  
  - Up to 8 credits of EES internship (EES 93, 293) and EES research (EES 393) may be used as major electives (no more than 4 of which can be EES 93/293).

32 credits in EES plus 8 credits of collateral sciences for a total of 40 credits

Bachelor of Sciences in Earth and Environmental Sciences (69 credits)

- Collateral sciences (at least 21 credits):
  
  - Two courses in Mathematics for at least 7 credits (one must be a course in Calculus)
  
  - One specified course and lab in Chemistry: CHM 21/22 or CHM 75 (4 to 5 credits)
  
  - One specified course and lab in Physics (PHY 10 or 11 and PHY 12) (4 credits)
  
  - To bring total collateral credits to a minimum of 21, at least two additional courses in Biology (BIOS 41 or above), Chemistry (CHM 31 or above), or Physics (PHY 13 or above)

- Gateway Sequence (at least 4 credits):
  
  - Any introductory course in EES (except EES 4 and EES 22, but including EES 105)
  
  - Integrated introductory laboratory course (EES 22)

- Core sequence in EES major (12 credits):
• *EES 100 – Earth Systems Science*
• *EES 200 – Earth History*
• *EES 380 – Senior Seminar in EES*

**Field Requirement:**
- Successful completion of EES 341, or other field experience approved by EES Field Committee. Four credits of EES 341 may be applied to major electives; all 6 credits for this course apply to the graduation requirement of 121 total credits.

**Writing-Intensive Requirement:**
- *Completion of a designated writing-intensive during the Junior year, preferably within EES (one designated 300-level course will be offered each semester)*

**Major electives (at least 8 courses for at least 32 credits):**
- *Select from EES or cross-listed offerings at the 100 through 300 levels*
- *At least four of the courses must be at the 300 level*
- *Up to 8 credits of EES internship (EES 93, 293) and EES research (EES 393) may be used as major electives (no more than 4 of which can be EES 93/293).*

48 credits in EES plus 24 credits of collateral sciences for a total of 69 credits

1. **Degrees dropped**
   - Bachelor of Sciences in Ecology
   - Bachelor of Sciences in Environmental Science
   - Bachelor of Sciences in Geology

   _Rationale:_ In recent years we have had some 20-30 BS majors spread among these three degrees. Neither student demand nor faculty capacity justify continued offering of the large suite of courses required to keep these majors distinct. Offering three separate B.S. degrees has come to diverge from our departmental mission in earth systems science and our focus on integrating research and instruction in earth science and environmental biology.

2. **Degrees added**
   - Bachelor of Sciences in Earth and Environmental Sciences

   _Rationale:_ A single integrated B.S. degree in EES better matches our departmental mission and will permit us to devote instructional effort to introductory-level instruction and to some of the new and forthcoming initiatives at Lehigh (Environmental Initiative, creativity, first-year experience, South Mountain College, ...). See overview (above) for more details.
3. **Degrees and programs modified**
   Bachelor of Arts in Earth and Environmental Sciences

   *Rationale:* Changes in EES introductory offerings and the creation of a core sequence require that we modify the requirements for the B.A. degree (we are retaining the total credits required). Details are given above.

   Minor in Earth and Environmental Sciences

   *Rationale:* Changes in the nature of our EES introductory offerings (elimination of the EES 21-31 introductory sequence and the associated labs) require that we make a small change to the minor, retaining the overall credits but requiring that the integrated lab (EES 22) be part of the minor.

4. **Summary Impact Statement for Change in EES Programs**

   **Impact on College Requirements:** We have carefully considered how our proposed changes would link to CAS and CBE science distribution requirements. The large number of topical courses at the introductory level will improve instruction for these students and give them more options in topic and in scheduling. In addition, by offering one-credit lab and discussion courses, students will be able to more easily meet distribution requirements. We will require students taking these one-credit courses (EES 4, EES 22) to either have another EES course as either a prerequisite or co-requisite, so that the students have some context and preparation in the area.

   **Impact on Scheduling and Classrooms:** Our standalone lab and discussion courses should be zero-sum with respect to number of sections and lab classrooms required. The increase in the number of slots needed for our new introductory courses will be largely offset by the courses we are dropping. EES faculty are aware of and in fact willing to teach in afternoon slots if this is required. Zeitler consulted with the Registrar by phone and Bruce has no problem with the proposed revision as long as the number of lab classrooms does not increase. An additional benefit of our revision will be a small reduction in demand for large lecture halls in the morning time slot.

   **Impact on LTS:** The shift in teaching effort from upper to lower levels should have no impact on LTS facilities or consultants. None of the proposed courses venture into areas that would require new acquisitions. Zeitler discussed this with Christine Roysdon and we agreed that there no special allocations, expenditures, or redirection of staff effort will be required by our changed curriculum.

   **Impact on Other Programs and Departments:** Our main programmatic links are to Civil and Environmental Engineering, and the Environmental Studies Program. We have been in touch with both and discussed our new curriculum to ensure continuity. We have retained courses cross-listed with CEE ES (Environmental Studies), and Astronomy.
Although EES 31 (Introduction to Environmental and Organismal Biology) will no serve as a required four-credit requirement for the major, we will continue to offer at least one section of this course per year as a gateway course, without enrollment caps. Given recent enrollments per offering of ~50 students, who do not anticipate any significant shift of students to Biosciences or other introductory-level courses.

We will have several courses cross-listed with the Global Citizenship program.

5. Plans for Implementation

Transition for Current EES Majors and Minors: As usual, current B.S. majors will have the option of switching to the new program. For those students who wish to graduate in their current program, EES major advisers will work with each student on an individualized basis to arrange any substitutions that might be required. Current EES minors simply need to take 15 credits in EES, so there is no problem for them in finding courses.

Transition for CAS and CBE Non-Science Majors (and their advisers!): Because we currently offer a sizeable fraction of science distribution credits to a large number of students in CAS and CBE, we are acutely aware of the need to provide a clear explanation of our changed introductory sequence and how students can access EES courses. As we noted earlier, our new curriculum should offer greater flexibility in scheduling, a better match to student interests, and more ways to achieve the various credit requirements in CAS and CBE. In advance of Fall 2006 preregistration, we will publicize our courses changes in the Brown and White and by sending all advisers in CAS and CBE a clear document and map for how students can meet science requirements if they choose EES courses. We will also duplicate this information on our departmental web site.

First-Year Students – Advising and Enrollment Management: We will continue to make contributions to the CAS College Seminar program, in addition to the suite of gateway courses we offer. This will provide one continued venue for first-year advising. However, we will also be in a better position to incorporate first-year advising into many of the gateway courses by means of breaking out sections for either first-year students, or first-years and sophomores. Although the details will depend on the specifics of each course, we intend to carefully manage enrollments in the gateway sequence such that space is left in each course for underclassmen – we will do this during the preregistration period by opening sections on a rolling basis. We recognize the need to provide access to juniors and seniors who need to fulfill requirements, but we also want to guarantee spaces for freshmen and sophomores so that they can take advantage of the smaller-class experience.
Synopsis of Degrees and Courses
Revised EES Curriculum
Final revision after meeting on 11/16/05

1. Minor in EES (15 credits)
   (a) The integrated introductory laboratory course (1 credit)
   (b) Additional EES courses for a minimum of 14 credits.

2. BA in EES (40 credits)
   (a) University and College requirements (at least 26 credits)
   (b) Junior writing requirement (filled by designated major elective, or
       course external to EES)
   (c) Math and collateral sciences (8 credits): one semester of math (4
       credits); one semester of math, chemistry, or physics (4 credits)
   (d) One introductory-level offering in EES (3 credits)
   (e) EES Introductory laboratory course (EES 22) (1 credit)
   (f) EES core sequence (12 credits): EES 100, 200, and 380
   (g) Major electives (16 credits): Four other EES courses, 100 level or above.
       Up to 8 credits of EES internship (EES 93, 293) and EES research (EES
       393) may be used as major electives (no more than 4 of which can be
       EES 93/293).

Total in EES: 32 credits

3. BS in EES (69 credits)
   (a) University and College requirements (at least 26 credits)
   (b) Junior writing requirement (filled by designated major elective, or
       course external to EES)
   (c) Math and collateral sciences (total of at least 21 credits):
       (i) two courses in Math, one of which must be Calculus (MATH 12
           or above)
       (ii) CHM 21/22 or CHM 75
       (iii) PHY 10 or 11, and PHY 12
(iv) two or more additional courses chosen from Biology (BIOS 41 or above), Chemistry (CHM 31 or above), or Physics (PHY 13 or above) to meet 21-credit minimum.

(d) One introductory-level offering in EES (3 credits)

(e) EES introductory laboratory course (EES 22) (1 credit)

(f) EES core sequence (12 credits): EES 100, 200, and 380

(g) Eight major electives in EES at the 100-level or above (at least 32 credits), four of which must be at the 300-level. Up to 8 credits of EES internship (EES 93, 293) and EES research (EES 393) may be used as major electives (no more than 4 of which can be EES 93/293).

(h) Field experience, either EES 341 or preapproved alternate experience (0 to 6 credits) – EES 341 counts as one four-credit course towards major electives, although all 6 credits count towards graduation requirements.

**Total in EES:** 48 credits
Total with collaterals: 69 credits (with 26 credits of general requirements, this leaves 26 credits of free electives.

4. Five-year program; joint program with CEE

No changes in five year program; for CEE joint degree, no specific program changes required, just a need to clean up suggested courses and pattern rosters in the catalog.

**Proposed Array of Courses**

300 level and below
(Yearly Offerings)

GCP = cross-listed with Global Citizenship
ES = cross-listed with Environmental Studies
CEE = cross-listed with Civil and Environmental Engineering
ASTR = cross-listed with Astronomy

**Introductory Level** (courses offered twice a year listed twice; all are 3 credits unless noted)

_EES 002. Environmental Science (Sahagian) ~100 students GCP, ES_

_EES 004. Integrated Recitation (Zeitler, Kodama) max ~10 sections per year at 25 per section required to meet possible enrollments (2 TAs)_;
EES 011. Environmental Geology (Evenson) ~150 students
EES 011. Environmental Geology (Evenson) ~150 students
EES 012. Ice Age Earth (Evenson) ~35 students
EES 014. Land of the Midnight Sun (Ramage) ~35 student
EES 015. Volcanoes and the Ring of Fire alternates with EES 90 (Bebout) ~20 students
EES 016. Geology of War (Pazzaglia) ~35 students
EES 021. (Anastasio, Kodama) ~50 students
EES 021 (Anastasio, Kodama) ~50 students
EES 022. Integrated Introductory Lab (Anastasio, Yu) ~17 lab sections per year at 20 per section required to meet current intro-level lab enrollments (4-5 TAs)
EES 024. Climate Change (Yu) ~35 students
EES 025. The Environment and Living Systems (Morris) ~35 students
EES 026. Energy - Origins: Impact and Options (Zeitler) ~35 students GCP
EES 027. Natural Hazards (Melzer/designate) ~35 students. GCP
EES 031. Introduction to Environmental and Organismal Biology (Hargreaves) ~35 students
EES 089. Geographic Analysis of Our Changing World (Hargreaves) 4 credits. GCP
EES 090. College Seminar (at least one offering per year)
EES 093. Freshman Supervised Internship in Earth and Environmental Sciences (1-2) (staff) (ND)
EES 105. Planetary Astronomy ASIR (for use in EES B.A. and B.S. counts as one of the intro-level gateway courses)

Courses at 100 Level (offered every year)

EES 100. Earth Systems Science (Ramage, Sahagian) (CORE COURSE) GCP
EES 115. Surficial Processes (Pazzaglia).
EES 131 Rocks and Minerals (Bebout).
EES 152 Ecology (Booth)

Courses at 200 Level (offered every year)

EES 209. Earth History (Zeitler, Wynn) (CORE COURSE)
EES 223 Structural Geology: Tectonics (Anastasio). WI
EES 250. Terrestrial Ecosystems (Yu). WI
EES 293. Supervised Internship in Earth and Environmental Sciences (1-4) (staff)
Courses at 300 Level (offered every year except where noted)

EES 301. Seismology: Images and Dynamics of the Earth’s Interior (Meltzer/designate) alternate years
EES 306. Geologic Records of Environmental Change (Kodama)
EES 315. Soil Science (Wynn)
EES 316. Hydrogeology (Peters)
EES 325. Remote Sensing of Terrestrial and Aquatic Systems (Ramage)
EES 334. Geosphere Structure and Evolution (Bebout Kodama) alternate years
EES 341. Field Geology (Pazzaglia and staff)
EES 357. Paleoenvironments and Landscape History (Yu Booth)
EES 358. Microbial Ecology (Morris) alternates with Methods in Water Quality Analysis
EES 365. Ecophysiology (Hargreaves)
EES 371. Methods in Water Quality Analysis (Morris) alternates with Microbial Ecology
EES 380. Senior Seminar (Anastasio, Hargreaves) [Peters, Bebout, Zeitler, Meltzer]
Offered every semester; faculty teaching in a regular rotation shown in parentheses
faculty teaching less frequently shown in brackets
EES 392. Supervised Research in Earth and Environmental Sciences (1-4) (staff)

EES 320 (CEE 320). Engineering hydrology CEE
EES 323 (CEE 323). Environmental Groundwater Hydrology CEE
EES 327 (CEE 327). Surface Water Quality Modeling CEE
EES 379 (CEE 379). Environmental Case Studies CEE
Summary and Key
EES Course Changes

COURSES WITH NO CHANGES
EES 11       EES 93       EES 293
EES 90       EES 105      EES 393

COURSES DROPPED
EES 3         EES 255      EES 319
EES 41        EES 265      EES 326
EES 112       EES 282      EES 351
EES 113       EES 287      EES 359
EES 204       EES 303      EES 384
EES 213       EES 305      EES 385
EES 253       EES 309

COURSES ADDED
EES 4         EES 24       EES 200
EES 12        EES 25       EES 250
EES 14        EES 26       EES 306
EES 15        EES 27       EES 315
EES 16        EES 100      EES 365
EES 22        EES 115      EES 380

COURSES CHANGED IN NUMBER (≠ changes in description, prerequisites)
EES 109 to EES 89
EES 123 to EES 223
EES 257 to EES 371
EES 259 to EES 358

COURSES CHANGED IN DESCRIPTION
EES 21        EES 325      EES 357
EES 31        EES 334

COURSES CHANGED IN CREDITS AND/OR PREREQUISITES
EES 002       EES 152      EES 316
EES 131       EES 301      EES 341
Department of Earth and Environmental Sciences

Course changes for Earth and Environmental Sciences (EES)

Note: as a guide to the many changes we are proposing, we have appended a list of all proposed course changes to provide an overview and key for changes described below. Additional rationale and background can be found in the Program Changes document we have submitted along with this one.

Course changes for Earth and Environmental Sciences (EES)

1. Courses dropped
   EES 3 – Global Environmental Change
   EES 41 – Physical Geology and Geomorphology in the Rocky Mountains
   EES 112 – Geomorphology
   EES 113 – Life and Climate in the Rock Record
   EES 204 – Environmental Geophysics
   EES 213 – Process Sedimentology, Stratigraphy, and Surficial Processes
   EES 253 – Plants and Plant Communities
   EES 255 – Ecological Field Methods
   EES 265 – Environmental Animal Physiology
   EES 282 – Climate, Geosphere, Biosphere
   EES 287 – Introduction to Environmental Isotopes
   EES 303 – Active Tectonics
   EES 305 – Geodynamics
   EES 309 – Mineral Magnetism and Earth Processes
   EES 319 – GIS and Computational Analyses in Geomorphology
   EES 326 – Geologic Evolution of North America
   EES 351 – Limnology
   EES 359 – Case Studies in Ecosystem Ecology
   EES 384 – Lake Ecosystems
   EES 385 – Human Impact on the Natural Environment

Rationale: The content in EES 3 will reappear in several other new courses and in one of our new topical courses. EES 41 was an introductory-level summer field course in geology that we are considering resuscitating with a broader outlook, but this decision and the work involved are not complete, so it makes more sense to drop this course now and then propose a new course if and when we are ready. The remaining courses are being dropped as part of our curricular redesign, which involves consolidating material offered at advanced levels, and shifting teaching effort to smaller introductory-level courses.
2. **Courses added**

**EES 004. The Science of Environmental Issues (1)**
Analysis of current environmental issues from a scientific perspective. The focus on the course will be weekly discussions based on assigned readings. Prerequisites: none. Kodama, Zeitler. (NS)

*Rationale:* The goal of this course is to help beginning students assess environmental issues from a scientific viewpoint, and to broaden student awareness of current issues. EES 004 will also help students meet CAS distribution requirements in combination with other three-credit EES introductory courses.

**EES 012. Ice Age Earth (3)**
An investigation of how cold climates and the associated processes of glaciation and periglacial activity have left their imprint on the Earth. Three-day required field trip. Prerequisites: none. Evenson. (NS)

*Rationale:* This is one of the new EES topical courses that will be offered in a smaller class format of ~30 students. This will permit more interaction between instructor and students, and although the courses will review the basic material needed for context, there will be more time to investigate data and ideas in more depth than in a survey course.

**EES 014. Lands of the Midnight Sun (3)**
Investigations of polar exploration and science, the environment at high latitudes, and cultures of the Arctic, as well as discussion of issues related to understanding interactions among extreme environments, global change, pollution, and indigenous cultures. Lecture, discussion, classroom activities. Prerequisites: none. Ramage. (NS)

*Rationale:* This is one of the new EES topical courses that will be offered in a smaller class format of ~30 students. This will permit more interaction between instructor and students, and although the courses will review the basic material needed for context, there will be more time to investigate data and ideas in more depth than in a survey course.

**EES 015. Volcanoes and the Ring of Fire (3)**
Volcanoes are a tangible, often breathtaking, reminder of the inner workings of our restless planet. In this course, we consider the processes leading to volcanic eruptions, the significance of volcanism for long-term Earth evolution, and the hazards volcanoes create for humans, particularly those living in the circum-Pacific (the Ring of Fire). Prerequisites: none. Bebout. (NS)

*Rationale:* This is one of the new EES topical courses that will be offered in a smaller class format of ~30 students. This will permit more interaction between instructor and students, and although the courses will review the basic material needed for context, there will be more time to investigate data and ideas in more depth than in a survey course.
EES 016. Geology of War (3)
Introduction to Earth and Environmental Sciences through a study of the geologic causes of war, the geologic influences over the outcomes of great battles, and the long-term environmental impacts of war. Instructional format includes lectures, discussions, student projects, and a field trip to Gettysburg National Military Park. Prerequisites: none. Pazzaglia (NS)

Rationale: This is one of the new EES topical courses that will be offered in a smaller class format of ~30 students. This will permit more interaction between instructor and students, and although the courses will review the basic material needed for context, there will be more time to investigate data and ideas in more depth than in a survey course.

EES 022. Exploring Earth (1)
Laboratory course in methods, data acquisition, data analyses and scientific communication relevant to Earth and Environmental Sciences. Case study of anthropogenic change in the Lehigh River watershed. Required fieldtrips. Pre- or co-requisite: introductory-level course in EES. Anastasio, Yu. (NS)

Rationale: With both future majors and non-majors in mind, this lab course is designed as a stand-alone introduction to methods and data analysis in EES. The lab integrates topics from across subdisciplines in EES through the Lehigh Valley case study. This course will help CAS students meet their lab-science distribution requirement.

EES 024. Climate Change (3)
Examination and discussion of Earth's climate history and the multiple interactions among components of the climate system, including ice, water, air, land, and vegetation; review of the causes of climate change at various time scales. Assessment of historical and future climate change and the role of humans in causing climate change, including global warming. Prerequisites: none. Yu. (NS)

Rationale: This is one of the new EES topical courses that will be offered in a smaller class format of ~30 students. This will permit more interaction between instructor and students, and although the courses will review the basic material needed for context, there will be more time to investigate data and ideas in more depth than in a survey course.

EES 025. The Environment and Living Systems (3)
The course will provide an introduction to the role of the environment in regulating living systems at a variety of scales and levels of organization. The role of the environment in regulating and shaping populations, communities, and ecosystems will be explored. In addition, the role of the environment will be discussed as it relates to the origin, evolution, and diversity of life on earth. Whenever possible, the role of anthropogenic environmental change will be discussed as it relates to the above topics. Prerequisites: none. Morris. (NS)

Rationale: This is one of the new EES topical courses that will be offered in a smaller class format of ~30 students. This will permit more interaction between instructor and students, and although the courses will review the basic material needed for context, there will be more time to investigate data and ideas in more depth than in a survey course.
EES 026 (GCP 026), Energy - Origins, Impacts, and Options (3)
Critical assessment of current and predicted energy resources used by humans, including their origins, distribution, environmental impacts, and feasibility. Lectures, discussion, field trips. Prerequisites: none. Zeilder. (NS)

Rationale: This is one of the new EES topical courses that will be offered in a smaller class format of ~30 students. This will permit more interaction between instructor and students, and although the courses will review the basic material needed for context, there will be more time to investigate data and ideas in more depth than in a survey course.

EES 027 (GCP 027), Natural Hazards: Impacts and Consequences (3)
Earthquakes, volcanoes, tsunamis, floods, and hurricanes are a natural part of the Earth and our environment. These events have violent consequences for our lives and significant economic implications. This course examines the causes, predictability, and risk mitigation for these events. We will also consider how natural disasters are represented by popular media and whether this helps or hurts public understanding of our dynamic planet and our relationship to it. Prerequisites: none. Meltzer. (NS)

Rationale: This is one of the new EES topical courses that will be offered in a smaller class format of ~30 students. This will permit more interaction between instructor and students, and although the courses will review the basic material needed for context, there will be more time to investigate data and ideas in more depth than in a survey course.

EES 100 (GCP 100), Earth Systems Science (4)
Examination of the Earth as an integrated system. Study of interactions and feedbacks between key components such as the atmosphere, biosphere, geosphere, and hydrosphere to permit better understanding of the behavior of the system as a whole. Response of the Earth system to human perturbations such as land use and emissions are explored in the context of predictions of future environmental conditions and their projected impacts back on human systems. Lectures, class discussions, and recitation. Prerequisites: EES 22. Ramage. Sahagian. (NS)

Rationale: This is the first course of the EES core sequence required of all B.A. and B.S. majors.

EES 115, Surficial Processes (4)
An introduction to process geomorphology and sedimentology that emphasizes the dynamic interactions of climate, tectonics, and watershed hydrology on the erosional, transportational, depositional, and biological processes that shape landscapes. Includes a field and computer-intensive lab. Prerequisites: EES 22. Pazzaglia. (NS)

Rationale: This is one of a trimmed number of courses at the 100-level that combines content from two dropped courses (EES 213 and EES 112).
EES 200. Earth History (4)
Review of the co-evolution of Earth, life, climate, and the environment, and introduction to the records used to constrain this history. The course addresses environmental changes at both geologic and human time spans. Includes laboratory exercises and field trips.
Prerequisite: EES 100. Wynn, Zeitler. (NS)

Rationale: This is the second course of the EES core sequence required of all B.A. and B.S. majors.

EES 250. Terrestrial Ecosystems (4)
Ecosystem ecology in the context of the Earth system; discussion of mechanisms by which terrestrial ecosystems function, including the flow of water and energy and the cycling of carbon and nutrients; characterization of temporal and spatial patterns in ecosystem processes and their sensitivity to environmental and biotic changes; integration of global scale effects of these processes. Includes lectures, field trips and laboratories. Prerequisite: EES 115 or EES 152. Booth, Yu. (NS)

Rationale: This is one of a trimmed number of courses at the 200-level that provides fundamental content to the major.

EES 306. Geologic Records of Environmental Change (4) [3 for graduate registration]
This course provides an overview of high-resolution geologic records of environmental and global change, how they are analyzed, and how they can be used in a variety of disciplines. Time series analysis, age control, completeness of sequences, and correlation of records will be covered. A class project will use acquisition and analysis of environmental magnetic data to demonstrate how records of global and environmental change are constructed. Prerequisite: EES 100. Kodama. (NS)

Rationale: This course becomes part of our more focused suite of major electives, examining longer-term geologic-scale records of environmental change. It complements material presented in EES 357.

EES 315. Soil Science (4) [3 for graduate registration]
This course focuses on the interaction of Earth's lithosphere, biosphere and atmosphere in the pedosphere, a component of Earth's "critical zone." Topics covered will include fundamentals such as soil properties and classification, soil chemistry, hydrology and biology, as well as specific applications to recognizing and understanding environmental problems in Earth's surface environment. Includes lectures, weekly laboratory, and field trips.
Prerequisite: EES 100. Wynn. (NS)

Rationale: This course introduces coverage of an important part of the Earth system that is receiving considerable attention. Some training in soils will be important for employment in the environmental industry as well as working in a number of academic subdisciplines of EES. This material will be of interest to many of our graduate students as well.
EES 365. Ecophysiology (4)
Properties and processes of organisms for effective acquisition of energy and exchange of heat, water, minerals, and gases via atmosphere, soil, and water, including response to extreme environments. Special emphasis on the role of solar radiation and factors influencing its interactions with the organisms and the abiotic environment. Lecture, demonstration, recitation. Prerequisite: EES 100, EES 152. Hargreaves. (NS)

Rationale: This course becomes part of our more focused suite of major electives examining interaction of organisms and the environment.

EES 380. Senior Seminar in Earth and Environmental Sciences (4)
Multidisciplinary capstone seminar in the Earth and Environmental Sciences. The seminar will emphasize review of the scientific literature, synthesis, and skills in written and oral communication. Topics vary with offering. May be repeated for credit for use as a free elective that counts towards graduation requirements. Not open to graduate students. Prerequisites: EES 200, and senior standing. Staff. (NS)

Rationale: This is the third course in the EES core sequence required of all B.A. and B.S. majors. This senior seminar will be offered every semester and will be taught in rotation by at least four EES faculty members. Topics, chosen from current events, pressing environmental issues, or timely academic controversies, will require cross-disciplinary expertise and interaction among students with different perspectives.

3. A. Changes in Number

EES 109. Geographic Analysis of our Changing World (3)
becomes
EES 89 [GCP 089]. Geographic Analysis of our Changing World (3)
No change in description. Prerequisites: none. Hargreaves. (NS)

Rationale: This course is intended to provide a first exposure to geographic information systems and modern treatments of spatial data; its audience includes students both within and outside EES, including students working in Environmental Studies. An offering at the introductory level best serves this broad audience.

EES 123. Structural Geology and Tectonics (4)
becomes with change in description
EES 223. Structural Geology and Tectonics (4)
Material behavior of rocks and the architecture of the Earth’s crust. Plate tectonic processes and plate margin deformation. Introduction to geologic maps and field techniques. Lectures, laboratories, and one or two weekend fieldtrips. Prerequisite: EES 115 or EES 131. Anastasio. (NS)

Rationale: This course shifts to the 200-level to better reflect the preparation required for it.

EES 257. Methods in Water Quality Analysis (4)
becomes
EES 371. Methods in Water Quality Analysis (4) [3 for graduate registration]
No change in description. Prerequisite: CHM 21, 22, or consent of the instructor. Morris. (NS)

Rationale: This course shifts to the 300-level to become part of our more focused suite of major electives.

EES 259. Microbial Ecology (4)
becomes
EES 358. Microbial Ecology (4) [3 for graduate registration]
No change in description. Prerequisites: EES 152 or consent of the instructor. Morris. (NS)

Rationale: This course shifts to the 300-level to become part of our more focused suite of major electives.

B. Changes in Description

EES 021. Introduction to Planet Earth (4)
becomes
EES 021. Introduction to Planet Earth (3)
Processes within the Earth and dynamics interactions among the solid earth, the atmosphere, and the oceans. Lectures. Prerequisites: none. Anastasiak, Kodama. (NS)

Rationale: Change in description: removal of labs and field trips, which now occur in EES 22. Change in credits: this course becomes part of the EES introductory "gateway" suite, all of which are three credits and have the potential to feed into the integrated introductory laboratory (EES 22).

EES 031. Introduction to Environmental and Organismal Biology (4)
becomes
EES 031. Introduction to Environmental and Organismal Biology (3)
Introduction to the structure, function, and evolution of living systems, with emphasis at the levels of organism population, community, and ecosystem. Lectures. Hargreaves. (NS)

Rationale: Change in credits: This course becomes part of the EES introductory "gateway" suite, all of which are three credits and have the potential to feed into the integrated introductory laboratory (EES 22).

EES 325. Remote Sensing of Terrestrial and Aquatic Environments (4) [3 for graduate registration]
becomes
EES 325. Remote Sensing of Terrestrial and Aquatic Environments (4) [3 for graduate registration]
Techniques of observing the Earth from air- and space-borne instruments, including issues of geometry and scale associated with making measurements, electromagnetic properties of Earth surface materials, the range of instruments used to observe the Earth, image interpretation, and applications of satellite remote sensing to geological, ecological, and environmental questions. Lecture and lab. Prerequisites: EES 22, or EES 89, or consent of instructor. Ramage. (NS)
Rationale: Change in prerequisite required due to changes in the curriculum.
EES 334. Petrology of the Crust and Mantle (4) [3 for graduate registration]
becomes
EES 334. Geosphere Structure and Evolution (4) [3 for graduate registration]
Synthesis of the state of knowledge of Earth structure and long-term evolution with emphasis on the crust and mantle, and integrating petrologic, geophysical, and geochemical perspectives. Mass and energy transfer through time among the crust, mantle, hydrosphere, biosphere, and atmosphere. Petrographic study of selected rock suites, and introduction to geophysical observations of the deep structure of the solid Earth. Lectures, discussion, laboratories, field trip. Prerequisites: EES 131 or consent of instructors. Bebout and Kodama. (NS)

Rationale: Change in prerequisite required due to changes in the curriculum. Change in description reflects incorporation of material from dropped courses, and desire to offer a course that integrates physical and chemical interactions in the solid Earth.

EES 357. Paleocology and Landscape History (4) [3 for graduate registration]
becomes
EES 357. Paleocology and Landscape History (4) [3 for graduate registration]
Principles and methodologies of paleocology, with emphasis on palynology. Applications of paleo-records in tracing flora, vegetation, climate and landscape history. Long-term ecological interactions and ecosystem responses to past environmental change. Field and laboratory experiences in collecting and characterizing sediments and in processing and interpreting fossil pollen and other proxy data. Students will explore regional vegetation, climate and landscape history by coring and analyzing sediments from lakes and wetlands. Course requires one or more weekend day-long field trips. Prerequisite: EES 100, or consent of course instructors. Yu and Booth. (NS)

Rationale: Change in prerequisite required due to changes in the curriculum. Change in description reflects incorporation of material from dropped courses, and desire to offer a course that integrates physical and chemical interactions in the solid Earth.

C. Changes only in Credits, or Prerequisites

EES 002 (ES 002). Introduction to Environmental Science (4)
becomes
EES 002 (ES 002, GCP 002). Introduction to Environmental Science (3)
No change in description. Prerequisite: none. Sahagian. (NS)

Rationale: Change in credits; his course becomes part of the EES introductory "gateway" suite, all of which are three credits and have the potential to feed into the integrated introductory laboratory (EES 22). Students can add EES 004 to their schedules, which together with EES 002 will provide coverage similar to the previous version of EES 002.

EES 131. Introduction to Rocks and Minerals (4)
becomes
EES 131. Introduction to Rocks and Minerals (4)
No change in description. Prerequisite: EES 22. Bebout. (NS)

Rationale: Change in prerequisite required due to changes in the introductory sequence.
EES 152 [BIOS 152]. Ecology (4)
   becomes
EES 152. Ecology (4)
No change in description. Prerequisite: EES 22. Booth. (NS)

Rationale: Change in prerequisite required due to changes in the introductory sequence. Biosciences is dropping the cross-listing.

EES 301. Seismology: Images and Dynamics of the Earth’s Interior (4) [3 for graduate registration]
   becomes
EES 301. Seismology: Images and Dynamics of the Earth’s Interior (4) [3 for graduate registration]
No change in description. Prerequisite: EES 100, or consent of the instructor: Meltzer. (NS)

Rationale: Change in prerequisite required due to changes in the curriculum.

EES 316 (CEE 316). Hydrogeology (4) [3 for graduate registration]
   becomes
EES 316 (CEE 316). Hydrogeology (4) [3 for graduate registration]
No change in description. Prerequisite: EES 22, or consent of instructor: Peters. (NS)

Rationale: Change in prerequisite required due to changes in the curriculum.

EES 341. Field Geology (6)
   becomes
EES 341. Field Geology (6)
No change in description. Prerequisites: Consent of Field Camp Director Pazzaglia (students must apply through the Lehigh Field Camp Program); declared major in EES; EES 22, and at least four EES courses at the 100-level or above. Pazzaglia. (NS)

Rationale: Change in prerequisite required due to changes in the curriculum.

4. Impacts of course changes
   Our numerous course changes are driven by a major revision of our degree programs. See the document describing program changes for more information.

   Changes in faculty teaching loads are essentially zero-sum under our proposed plan. However, faculty will be offering fewer courses, but more regularly, and when faculty are on leave, we now have a greater ability to cover courses with existing faculty effort. Finally, our proposed revisions will help our junior faculty develop sustainable courses that they will continue to offer in the years to come; the desire to make their course-development efforts efficient and productive was one of the rationales for initiating our revisions.

   I.A., library, technology and other resources should not be impacted by our proposed changes. We were careful to consider this early in our deliberations. The EES chair recognizes that there will be some increased equipment and related costs that come along with development of new courses and labs, and he has made preparations to fund these from internal
departmental resources (for example, EES will support a graduate student in summer 2006 to help with development of the EES 22 introductory lab).

We have consulted the Registrar over possible classroom and scheduling issues. Because we are not proposing an increase in the number of lab or discussion sections, and because the new courses we are adding are more than offset by those that we are dropping, there will not be a significant impact in this area.

We will disseminate guidelines and pattern posters to students and advisers through CAS and CBE, we will take out notices in the Brown and White, and we will develop a web page on our departmental site to guide people through the changes we have made.

MEETING SCIENCE DISTRIBUTION REQUIREMENTS
USING THE EES CURRICULUM

**College of Arts and Sciences**
CAS requires science courses totaling eight credits, with at least one course that provides a laboratory experience. To meet CAS requirements using EES courses, the most direct route would be to take:

- any two introductory courses in EES for a total of 6 credits;
- the discussion course on environmental issues (EES 4, Science of Environmental Issues) for one credit; and
- the one-credit EES introductory lab course (EES 22, Exploring Earth).

Note that EES 22 requires any other introductory course in EES as either a prerequisite or a co-requisite.

Note also that once you have taken EES 22, the EES courses offered at the 100 level become options that you might consider if you have an interest in topics like the shape of the landscape you see while hiking, the nature of those rocks you picked up when you were a kid, or the reasons why the plants and animals you’re familiar with are where they are.

Finally, keep in mind that if you do take all your science distribution credits in EES, you’re more than halfway to a minor!

**College of Business and Economics**
CBE requires three credits of science. Any EES course at the introductory level will meet this requirement without prerequisites.

We encourage students from CBE to consider enrolling on EES 4, Science of Environmental Issues. This one-credit discussion course examines environmental issues from a scientific perspective but also considers how different stakeholders and interest groups might view these issues. We’d welcome the perspective of people from CBE.
Economics

Course changes

1. Courses dropped
   None

2. Courses added
   None

3. Other changes (number, title, credits, or distribution designation)
   Change in prerequisites:
   i. Eco 105, Intermediate Microeconomic Analysis (3)
   Current prerequisite: Eco 1
   Proposed prerequisites: Eco 1 and Math 51 or 21 or their equivalents.
   Rationale: Will make the prerequisites more consistent with the substitutes
   class, Eco 146 and will improve manner in which class material can be
   presented

4. Changes in description
   None

5. Impacts of course changes
   None

Economics

Course changes

1. Courses dropped
   None

2. Courses added
   None

3. Other changes (number, title, credits, or distribution designation)
   Changes in course title
   i. Eco 158, LUCORPS projects (3)
   Proposed new title: Community Consulting Practicum
   Rationale: The proposed title is a better description of what this class
   entails.

4. Changes in description
   None

5. Impacts of course changes
   None

Economics

Course changes

1. Courses dropped
   None
2. **Courses added**
   None

3. **Other changes (number, title, credits, or distribution designation)**
   Renumber
   i. Eco 138. Athletic Complex Design (3)
   Proposed new number: Eco 15X
   **Rationale:** Provides more information to students and provides some logic to course numbers as Eco 15X designate Eco classes that involve team projects, whereas the Eco 13X classes are more traditional (lecture) classes.

4. **Changes in description**
   Eco 361. Martindale Research Seminar (1-3)
   Proposed new sentence to add to course description: This course does not count towards the Eco major or minor.
   **Rationale:** The research project that the student undertakes may have little economic content.

5. **Impacts of course changes**
   None

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**English**

**Course changes**

1. **Courses dropped**
   None

2. **Courses added**
   None

3. **Other changes (number, title, credits, or distribution designation)**
   Change in Title:
   English 3 and English 5 Composition and Literature for ESL. Writers change to English 3 and 5 Composition and Literature for International Writers
   **Rationale:** The courses have evolved into classes that are for international writers with some ESL needs, we would like to remove the “ESL” from the title to avoid the stigma of the “ESL” on their transcripts.

4. **Changes in description**
   None

5. **Impacts of course changes**
   The above changes have no impact on curriculum, faculty teaching loads, or on the budget.
Course changes

1. Courses dropped
   None

2. Courses added
   None

3. Other changes (number, title, credits, or distribution designation)
   Change in listing:
   - GCP 307 (ENGL 007) Global Literature (3)

   Rationale: In the 2005-2006 university catalog the Global Citizenship courses currently listed (a total of 4) appear with the course numbers labeled as “GC.” To be consistent with the courses above, please change “GC” to read “GCP.” Course descriptions should remain as in the 2005-2006 catalog.

4. Changes in description
   None

5. Impacts of course changes
   The above changes have no impact on curriculum, faculty teaching loads, or on the budget.

Environmental Studies Program

Course changes

1. Courses dropped—None

2. Courses added
   - ES (EES) 4, The Science of Environmental Issues (1)
     Sec EES Department for course description and rationale.

   ES 331/431, ES 333 (IR 333)/ES 433, ES 336/436, ES 338/438, and ES 343 (IR 343)/ES 443
   See the proposal for the Graduate Certificate in Environmental Law & Policy for course titles, descriptions, rationales and impacts.

3. Other changes (number, title, credits, or distribution designation)

   Change in number, distribution and crosslist:
   From: ES 102, Environmental Values and Ethics (4) HU
   To:   ES (PolS) 106, Environmental Values and Ethics (4) SS

   Rationale: The new distribution reflects the emphasis a new professor is putting on the subjects in this course and her preference to teach this as a social science course. Crosslisting was requested by the Political Science department and the change in number is to have the same number for the course for both ES and Political Science.
Change in number, description and crosslist:

From: ES 101: Environmental Policy and Planning (4) SS

Analysis of the framework that has been established to protect the environment and promote sustainable growth. Focus on the roles of the different branches of the U.S. government and the relative responsibilities of state and local governments within this framework as well as key international accords. Consideration of the political nature of environmental issues and the social forces influencing environmental protection.

To: ES (PolS) 105, Environmental Policy and Planning (4) SS

Analysis of the framework that has been established to protect the environment and promote sustainable growth. Focus on the roles of the different branches of the U.S. government and the relative responsibilities of state and local governments within this framework. Consideration of the political nature of environmental issues and the social forces influencing environmental protection in different areas of domestic environmental policy, such as climate change, toxic waste disposal, and natural resource conservation.

Rationale: The crosslisting was requested by the Political Science department and the change in number is to allow having the same number for both ES and Political Science. The change in description is to fit a new professor’s decision to emphasize domestic rather than international environmental policy.

Change in number and crosslist:

From: PolS 111, Politics of the Environment (4) SS
To: ES (PolS) 107, Politics of the Environment (4) SS

Rationale: ES desired to crosslist this course to make it more visible to ES students. The number was changed so it can be the same for the crosslisting. The Political Science department supported this crosslisting.

Change in crosslisting:

From: Jour. 125, Environment, the Public and the Mass Media (4) SS
To: ES (Jour) 125, Environment, the Public and the Mass Media (4) SS

Rationale: ES requested this crosslist so the course could be listed as part of its core program, indicating it as an integral part of the major. The Journalism and Communication department supported this crosslisting.

Change in crosslisting:

From: ES333/433, International Environmental Law and Policy (4-3)
To: ES (IR) 333/ES 433, International Environmental Law and Policy (4-3)

Rationale: The International Relations department requested crosslisting this course as IR 333.
Change in credits:

From: ES (EES) 2, Introduction to Environmental Science (4) NS
To: ES (EES) 2, Introduction to Environmental Science (3) NS

Rationale: Credit was dropped from 4 to 3 to accommodate revisions in the EES department to offer the recitation part of this course as a separate course, ES(EES) 4, for 1 credit.

Change in number:

From: ES (IR) 143, Comparative Environmental Law and Policy (4)
To: ES 343 (IR 343)/443, Comparative Environmental Law and Policy (4-3)

Rationale: This course was raised for ES and IR to the 300 level to be part of the Graduate Certificate in Environmental Law & Policy.

From: EES 109, Geographical Analysis of our Changing World (4)
To: EES 89, Geographical Analysis of our Changing World (4)

Rationale: Course number was changed by the EES department. See EES course changes for rationale.

4. Changes in Description:

See above for ES (Fol) 105.
See any changes in description for ES 331/431, ES 333 (IR 333)/ES 433, ES 336/436, ES 338/438, and ES 343 (IR 343)/ES 433 in the proposal for the Graduate Certificate program.

5. Impacts of course changes

No impacts are expected. These rearrangements and crosslistings are a continuing refinement of the ES major as new faculty are hired and the bugs are worked out in the new major. See the graduate proposal for any impacts of the five courses added for the new graduate certificate in Environmental Law & P.

Curriculum Changes: BA in Environmental Studies

A number of rearrangements are being proposed for the BA program. One course was added to the required category; one course each was dropped from the core, elective and collateral science categories. The net change was to reduce the total credit requirement for the program, including its collateral requirements, by eight credits from 62-64 to 54-56. These rearrangements are needed to meet the needs of new faculty and to ensure enough courses are being offered for students majoring in the program.
The entire BA program is provided for your information, with changes discussed in boldface.

**The BA Program in Environmental Studies**

**Required Courses (16 credits):** One course was added to the required category.

changing the number of required credits from 12 to 16 credits.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits Changed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 1</td>
<td>Introduction to Environmental Studies</td>
<td>from 4 to 3</td>
</tr>
<tr>
<td>ES (EES) 2</td>
<td>Introduction to Environmental Science</td>
<td>at request of EES department.</td>
</tr>
<tr>
<td>ES (EES) 4</td>
<td>The Science of Environmental Issues</td>
<td>This recitation course is being split out for separate credit by the EES Department from ES(EES2). Total credits with ES (EES) 2 will stay the same.</td>
</tr>
<tr>
<td>ES (PolS) 105</td>
<td>Environmental Policy and Planning</td>
<td>Crosslist added with PolS Department and change in ES number from 101 to 105 is to give the course the same number in both departments. This course was moved from the core to the required category to ensure that majors take a policy course as part of their program.</td>
</tr>
<tr>
<td>ES 381</td>
<td>Senior Seminar: Issues in Environmental Studies</td>
<td>(4) SS</td>
</tr>
</tbody>
</table>

**Core Courses: At Least 3 of the 7 following courses (12 credits):** One course dropped.

The requirement was previously 4 out of 7 courses. Several courses making up the Core were changed.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits Changed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 10</td>
<td>Environment and the Consumer Society</td>
<td>from elective to core to replace ES 105 in the core.</td>
</tr>
<tr>
<td>ES (PolS) 106</td>
<td>Environmental Values and Ethics</td>
<td>Crosslist added with PolS and number changed to have the same number for the crosslist. Course distribution changed from HU to SS to match the needs of the instructor.</td>
</tr>
<tr>
<td>ES (Eco.) 111</td>
<td>Introduction to Environmental Economics</td>
<td>Prerequisites of Eco. 1.</td>
</tr>
<tr>
<td>ES (Anth.) 125</td>
<td>Environment and Culture</td>
<td>SS</td>
</tr>
<tr>
<td>ES (Jour) 125</td>
<td>Environment, the Public and Mass Media</td>
<td>Writing Intensive. Course moved from elective to core to replace ES (Jour) 115. Crosslist added by ES program.</td>
</tr>
<tr>
<td>ES 171 (ChE/CEE 171)</td>
<td>Fundamentals of Environmental Technology</td>
<td>Prerequisites: One course designated NS</td>
</tr>
<tr>
<td>ES 315 (Hist 315)</td>
<td>American Environmental History</td>
<td>(4) SS</td>
</tr>
</tbody>
</table>

**Major Electives (12 credits including one course at the 200 level or above):** The number of required credits dropped from 16 to 12.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth. 145</td>
<td>Human Evolution (4)</td>
</tr>
<tr>
<td>Anth. 305</td>
<td>Anthropology of Fishing (4)</td>
</tr>
</tbody>
</table>
Arts 196  Sustainable Development: The Costa Rican Experience (3)

CEE 272  Risk Assessment (2)
CEE (EES) 379  Environmental Case Studies (3-4)
Eco 311  Environmental Economics (Advanced course with two prerequisites) (3)
Engi. 201-11  The Environmental Imagination (4)
EES 89  Geographical Analysis of our Changing World (4) Course number changed from 109 to 89 by EES department
ES (PoS) 107  Politics of the Environment (4) Added crosslist with ES and PoS and changed the number so the course can have the same number for crosslisting.
ES (Jour) 115  Communication about the Environment (4) Course moved from Core to Elective
ES (Jour) 116  Risky Business (4)
ES 131  Internship (1-2)
ES 181  Independent Study (1-4)
ES 333/431  U.S. Environmental Law I. Pollution & Risk Abatement (4-3)
ES 333 (IR 233)/ES433  International Environmental Law & Policy (4-3) Crosslisted with IR
ES 336/436  Environmental Justice & The Law (4-3)
ES 338/438  Environmental Risk: Perception & Communication (4-3)
ES 343 (IR 343)/ES443  Comparative Environmental Law & Policy. Changed in number from ES 143 and IR 143

The above package of five courses (ES 331-343) was submitted with the graduate program changes for the Graduate Certificate in Environmental Law & Policy. They also will be available to undergraduates and, consequently, are listed here.

ES 371  Special Topics (4)
ES 391  Honors Thesis (4)
IR 344  Politics of Oil (4)
Jour 123  Basic Science and Technical Writing (4)
Jour (STS) 323  Controversies (4)
PoS 328  U.S. Politics and the Environment (4)
PoS 375  Seminar: Green Policy (4)
Rel 6  Religion and the Ecological Crisis (4)
Rel 254  Buddhism and Ecology (4)
TBTE 394  Special Topics in Education - Environmental Education

Collateral Requirements (14-16 credits) Number of credits dropped from 18-20 by dropping the required number of science courses from 3 to 2. The previous list of specific science courses was dropped for a more general requirement.

SR 111  Research Methods and Data Analysis (4)
Math 12  Basic Statistics (4) *A calculus course may be substituted with permission of the program director.*
One EES course  Any EES course except ES(EES) 2 and 4, or their substitution (3-4)
One science course  Any level science course (including EES) with NS designation (3-4)
BA Program Change Explanations

1. Change in number of credits for the program

- The total number of credits required for the major including the collateral requirements has been dropped from 62-64 to 54-56.
- This was achieved by dropping one course each from the core, electives and the collateral science requirements, and adding one to the required category.
- This was done to bring the number of required credits for this major more in line with other social science majors. The total now required for the major without the collateral requirements is 40.

2. Additional Courses to the Required, Core and Elective categories.

- Several courses were moved from core to required, or core to elective, or elective to core. This movement reflects a better distribution of regularly taught courses within the major.
- A group of five new ES courses at the 300 and 400 level was added as part of the proposal to establish a graduate certificate in Environmental Law & Policy. All explanations and other materials for these courses are in the graduate proposal.
- Two crosslists with ES courses were requested by the Political Science department, two were requested by the International Relations department, and ES requested to crosslist a Journalism and Political Science course. All departments have given approval for these crosslists and no additional impact is expected. Crosslisting is encouraged to indicate the interdisciplinary nature of the ES program, while maintaining maximum cooperation with various social science departments.

3. Changes to the Collateral Science Requirements

- The previous list of specific science courses was removed because a number of exceptions were being made, so to simplify matters, a more general requirement of one EES and another science course (that could also be an EES course) was substituted. This eases tracking the collateral science requirement and gives students more flexibility.
Global Citizenship Program

Course changes

1. Courses dropped
   None

2. Courses added
   GCP 001 (ANTH 001) Introduction to Anthropology (4)
   This course provides an overview of the field of anthropology and the four
   sub-disciplines that comprise it: archaeology, biological anthropology,
   linguistics, and socio-cultural anthropology. Anthropology is the study of
   humans and their past and present social and cultural diversity. This class
   enables students to develop a greater understanding and appreciation of that
   diversity. Further, by exposing the broad range of human possibilities, this
   course will also force us to question our own assumptions about the world
   and how it “works.” Varn. (SS)
   Rationale:

   GCP 002 (ES 002, EES 002) Introduction to Environmental Science (3)
   This course in introductory environmental science focuses on an integrated
   system-approach to understanding our natural environment at all space
   scales, and on human time scales. Concepts to be covered span natural and
   human-induced drivers of environmental change, consequences within
   ecosystems, physical systems, and social systems, and options for mitigation
   of and adaptation to environmental change. Example topics include change
   within systems, biogeochemical cycles, population pressure, ecosystems and
   diversity, productivity and food security, energy, water resources, climate
   change, pollution, ozone, urban issues, and sustainability. The course will
   stress interactions and inter-relationships between components, with an
   emphasis on critical thinking about environmental issues. The course is
   intended for non-science majors with an interest in the environment.
   Sabagian. NS
   Rationale:

   GCP 003 (REL 003, PHIL 003) Global Religion and Global Ethics (4)
   Introduction to philosophical and religious modes of moral thinking, with
   attention given to ethical issues as they arise cross-culturally and through
   religious traditions. The course will reference the United Nations Millenium
   Goals to consider family life and the role of women, social justice, the
   environment, and ethical ideals. Particular focus varies but may include one
   or more of the following: abortion and reproductive health, the death
   penalty, religiously motivated violence, and problems of personal disorder
   (heavy drinking, anorexia, vengeance). Steffen. HU
   Rationale:

   GCP 008 (PHIL 008) Ethics in Global Perspectives (4)
   Economic, political, cultural, and ideological globalization presents two
   ethical challenges: Are there universally justifiable moral standards,
   principles, and values that would establish universally acceptable answers to
   the question of how humans should live their lives? That is, can there be a
   global ethics? What are justifiable responses to the variety of moral issues
facing the peoples of the world as a result of current globalization? This
course addresses the first question by examining the moral perspectives of a
variety of different ethical outlooks, including Euro-American, Hindu,
Buddhist, Confucian, African, and Islamic traditions. The second question is
addressed by examining a number of serious moral problems arising from
globalization, including the increasing gap between the rich so-called First
World nations and the poor so-called
Third World nations, global environmental degradation and war and
terrorism. Dülton. HU
Rationale:

GCP 012 (HIST 012) Europe since 1648: The Modern World and its
Discontents (4)
The rise of modern nation states; the scientific and industrial revolutions;
social movements and the French and Russian revolutions; impact of
Enlightenment philosophy, nationalism, liberalism, imperialism and fascism;
the development of modern class structure and transformations in gender
relations, art, popular culture and society.
Savage. HU
Rationale:

GCP 0XX (CSE 012) Survey of Computer Science (3)
Survey of topics in computer science, software development in Java, and web
page design. Includes multimedia laboratory. No prerequisites. Cannot be
taken with CSE 15, CSE 16 or Engr 1. Blank.
Rationale:

GCP 026 (EES 026). Energy – Origins, Impacts, and Options (3)
Critical assessment of current and predicted energy resources used by
humans, including their origins, distribution, environmental impacts, and
feasibility. Lectures, discussion, field trips. Prerequisites: none. Zehter. (NS)
Rationale:

GCP 027 (EES 027). Natural Hazards: Impacts and Consequences (3)
Earthquakes, volcanoes, tsunamis, floods, and hurricanes are a natural part of
the Earth and our environment. These events have violent consequences for
our lives and significant economic implications. This course examines the
causes, predictability, and risk mitigation for these events. We will also
consider how natural disasters are represented by popular media and whether
this helps or hinders public understanding of our dynamic planet and our
relationship to it. Prerequisites: none. Meltzer. (NS)
Rationale:

GCP 060 (THTR 060, ENGL 060) Dramatic Action (4)
How plays are put together; how they work and what they accomplish.
Examination of how plot, character, aural and visual element of production
combine to form a unified work across genre, styles and periods.
Recommended as foundation for further studies in design, literature, or
performance. Ripa. HU
Rationale:
GCP 073 (ASIA 073, MLI 073, WS 073) Film, Fiction, and Gender in Modern China (4)
20th century Chinese film and fiction reflect the conflict between male and female traditional and “modern” identities. Students will focus on the issue of the emergence of the individual out of communal culture and link it to the struggle to redefine the roles of men and women in a changing society as depicted by writers and filmmakers from the 1930s to the present. One topic of discussion will be narrative techniques used to reflect the conflict between self and state or other social conflict. Students will compare the common motifs of the oppressed female and impotent male used by modern writers/filmmakers in pre-modern settings. The class is conducted in English with English language materials. Cook. HU
Rationale:

GCP 89 (EES 089) Geographic Analysis of our Changing World (3)
This course will introduce students to maps, spatial data, and electronic tools for geographic analysis. Fundamental geographic and database concepts will include map types, special referencing systems, map projection systems, map scale, and database characteristics. Tools include ArcGIS Desktop software and Global Positioning System receivers will be used to acquire and analyze spatially referenced data sets drawn from diverse sources and disciplines relating to the environment. Students will use their new skills in geographic analysis to develop an electronic portfolio including a question-based map project. This course will prepare students for more advanced geographic analysis within the arts, humanities, social sciences, natural sciences, or engineering. Lecture-demonstrations and recitation. Prerequisites: none. Haigreaves. (NS)
Rationale:

GCP 100 (EES 100). Earth Systems Science (4)
Examination of the Earth as an integrated system. Study of interactions and feedbacks between key components such as the atmosphere, biosphere, geosphere, and hydrosphere to permit better understanding of the behavior of the system as a whole. Response of the Earth system to human perturbations such as land use and emissions are explored in the context of predictions of future environmental conditions and their projected impacts back on human systems. Lectures, class discussions, and recitation. Prerequisites: EES 22 and one introductory course in EES. Ramage, Sahagian. (NS)
Rationale:

GCP 105 (SSP 105) The Social Origins of Terrorism (4)
Examines the social, religious, and political foundations of terrorism by studying the roots of terrorism historically and cross-nationally. We will look at the differing kinds of terrorism, including political terrorism in the Middle East, anti-abortion terrorism in the United States, eco-terrorism, and religious and state terrorism throughout the world. Students will have a chance to better understand the beliefs of terrorists, conditions that produce and sustain terrorism, and the origins of political violence more generally. Munson. SS
GCP 108 (FOLS 108) Citizenship and its Discontents (4)
The purpose of the course is to consider the nature—and desirability—of
citizenship, both as an ideal and as applied (if possible) in the global context.
What exactly does it mean to be a "citizen"? Does citizenship require
particular actions, thoughts, or values? What are the legal, political, and
moral obligations of this designation? What exactly do you owe to your
neighbor, or to someone on the other side of the world? Readings from
Socrates to manifesto of the Unabomber. Finales. SS
Rationale:

GCP 109 (EES 109) Geographic Analysis of our Changing World (4)
This course will introduce students to maps, spatial data, and electronic tools
for geographic and database concepts will include map types, spatial
referencing systems, map projection systems, map scale, and database
characteristics. Tools including ArcGIS Desktop software and Global
Positioning System receivers will be used to acquire and analyze spatially
referenced data sets drawn from diverse sources and disciplines relating to
the environment. Students will use their new skills in geographic analysis to
develop an electronic portfolio, including a question-based map project. This
course will prepare students for more advanced geographic analysis within
the arts, humanities, social sciences, natural sciences, or engineering.
Lecture-demonstrations and recitation. Hargreaves. NS
Rationale:

GCP 110 (EMC 110) Energy Engineering (3)
The amount of energy used by a modern society is a barometer of its pace
and the manner in which it is accomplished is a measure of its steel and
caracter. Understanding the basis for the underlying processes is essential
education for every college student today. The course will delve into the
basics of energy, its measurement, amounts of availability, methods of
production and associated consequences on the environment. Ideas related to
fossil, nuclear and renewable energy sources will be considered and the
material will be presented with the simplest of mathematics along with an
appropriate sprinkling of physics and chemistry fundamentals. Implications
pertaining to the international nature of energy supplies and the related
political, social and economic repercussions are an important part of the
course. Neti.
Rationale:

GCP 1XX (REL 1XX) Islam Across Cultures (4)
explores the Muslim world's diversity and dynamism in multiple cultural
contexts—from the Middle East and North Africa, to Asia and America—
through literature, ethnography, and films. Topics include: travel and trade
networks; education; women and gender; Islam and cultural pluralism;
colonialism; and identity politics. Rozehnal. HU
Rationale:

GCP 120 (ANTH 120) Anthropology of Globalization (4)
Examines the relationship between local patterns of culture and the
presumably homogenizing forces of globalization. Topics include migration
diapora, and the politics of identity, the scope and effects of global
capitalism and consumerism, tourism, popular culture, the global art market,
and cultural authenticity. Yaun. SS
Rationale:

GCP 121 (ART 121, WS 121) Women in Art (3)
A history of women artists from Renaissance to present day, with an
emphasis on artists of the 20th and 21st century from a global perspective.
We explore attitudes toward women artists and their work as well as the
changing role of women in the art world. There may be required visits to
museums and/or artists' studios. Gans. HU
Rationale:

GCP 1XX (IR 120) Globalization and World Politics (4)
An exploration of the economic, political, cultural, and military
manifestations of globalization and the effects on the internal order of states
and the relations among them. Prerequisite: IR 10. Menon. SS
Rationale:

GCP 145 (REL 145, ASIA 145) Islam in the Modern World (4)
Examines how numerous Muslim thinkers, religious scholars, modernists,
and Islamists have responded to the challenges of the colonial and
post-colonial eras. Special emphasis is placed on the public debates over
Islam's authority and authenticity in contemporary South Asia. Rozental.
HU

GCP 1XX (IR 145) International Organization (4)
Examines how cooperation is achieved and sustained in world politics. Under
what circumstances does cooperation take place? What role do formal
international organizations (such as the UN) play? What roles do norms,
values, and ethics play? Can cooperation last? Questions pursued
theoretically and in practical terms across topical issues (e.g., human rights,
poverty, the environment, international law). Prerequisite: IR 10 Bialy
Materni (SS)
Rationale:

GCP 165 (ASIA 165, MLL 165) Love and Revolution in Shanghai (4)
This project-based course will examine human relationships and political-
economic changes in Shanghai through the lens of literature, film, and a
selection of other readings. Students will discuss the conflicts between and
influences of pre-communist, communist, and capitalist systems as played
out in the Shanghai area. Students will write research papers on aspects of
historical or modern Shanghai and present their results to the class. They will
also be responsible for blackboard and in-class discussions of assigned
readings and films. Cook. HU
Rationale:

GCP 231 (MLL 231, GERM 231) New German Cinema (4)
Viewing, discussion, and written analysis of selected German films.
Steinmann. HU
GCP 242 (CEE 242) Principles and Practices of Geotechnical Engineering (3)
Rationale:

GCP 260 (MLL 260, GERM 260) Multicultural Germany (4)
A look at Germany from the perspective of its "others"—the immigrants. We will read literary and cultural texts and watch films on the topic of ethnic diversity and integration. Stegmann HU
Rationale

GCP 301 (MGT 301) Business Management Policies (3)
Case study of business problems and the formulation of policies, strategies, and tactics to resolve those problems from the viewpoint of general management. Long-range goal attainment, policy formulation, and administrative implementation for specific functional areas and the total firm. Includes a simulation. Prerequisite: senior standing in the College of Business and Economics and completion of the college core. Schlie, Tao
Rationale:

GCP 320 (MKI 320) Global Marketing (3)
Focuses on understanding the process of globalization and its impact on the firm's marketing activities. Topics include changes in the global environment and their impact on marketing activities, development of global marketing strategies based on sound marketing research and the role of technology in global marketing strategies. Prerequisite: MKT 211. Maskulka
Rationale:

GCF3XX (ANTH 320) Global Capitalism (4)
Anthropological approach to the forms and effects of global capitalism. Topics include the structure of contemporary global capitalism, including the growth of multinational corporations, flexible corporate strategies, overseas manufacturing, and global branding and marketing; the impact of global capitalism on the environment and on the lives of people in “Third World” countries; consumer culture and the diversity of non-Western consumption practices, alternative capitalist systems, especially Asian capitalism. Vann. (SS)
Rationale:
GCF 350 (HIST 350) 19th century Paris and the Invention of Modernity (4)
This course considers the dramatic destruction and rebuilding of the city of
Paris in the decades after 1850 as a case study of the impact of modernization
on social, cultural, and political life. Topics include the Revolution of 1848,
Paris Commune and political theory; the history of city planning, engineering
professions and building trades; modern responses to crime, prostitution and
disease; the origins of photography, Impressionist painting and cinema; and
the creation of a mass consumer society. Savage HU
Rationale:

GCP 379 (CEE 379, EES 379) Environmental Case Studies (3-4)
Case Studies will be used to explore the impact of politics, economics,
society, technology, and ethics on environmental projects and preferences.
Environmental issues in both affluent and developing countries will be
analyzed. Multidisciplinary student teams will investigate site
characterization; environmental remediation design; environmental policy;
and political, financial, social, and ethical implications of environmental
projects. Prerequisites: E5 1 or EES 21 or CEE 276 / CHI 276 or
permission of the instructor. Jellison.
Rationale:

GCP 386 (ASIA 386) Chinese Culture in a Multinational Workplace (3)
Students explore the interaction between Chinese and non-Chinese cultures
at a variety of work sites in the city of Shanghai, a port city that has involved
people of many nationalities since its birth in the 1840s. This project-based
course involves a faculty mentored practicum at one or more specific sites
related to the student's own field or major, assigned readings, weekly
electronic blackboard discussions, and a written summary of the experience.
Cook. HU SS
Rationale:

3. Other changes (number, title, credits, or distribution designation)
   None

4. Changes in description
   None

5. Impacts of course changes
   (impact statements are provided for some of these courses by the departments
   with which they are cross-listed)

Global Citizenship Program
   Course changes
   1. Courses dropped
      None

   2. Courses added
      None
5. Other changes (number, title, credits or distribution designation)

Change "GC" to read "GCP"
GCP 006 (MLL 006) Globalization and Cultures (3)
GCP 007 (ENGL 007) Global Literature (3)
GCP 085 Practicum (1)
GCP 385 Global Citizenship Capstone Course (4)

Rationale: In the 2005-2006 university catalog the Global Citizenship courses currently listed (a total of 4) appear with course numbers preceded by "GC." To be consistent with the courses above, please change "GC" to read "GCP." Course descriptions should remain as in the 2005-2006 catalog.

4. Changes in description

None

5. Impacts of course changes

None

PROPOSED NEW MAJOR IN GLOBAL STUDIES
IR AND MLL DEPARTMENTS

The Department of International Relations (IR) and the Department of Modern Languages and Literature (MLL) propose a new degree program for a Bachelor of Arts in Global Studies. The program builds on strengths in the College of Arts and Sciences in the study of international relations and world languages, as well as on Lehigh University’s unique position as a non-governmental organization (NGO) with United Nations status. The new major incorporates courses from both IR and MLL, as well as electives from a number of other departments for a challenging program that requires overseas study, language facility, and undergraduate research.

I. RATIONALE FOR PROPOSED DEGREE PROGRAM

The MLL-IR collaboration represents the first of several anticipated tracks that will comprise the new Global Studies major under development as the centerpiece of the undergraduate curriculum of the CAS 2020 initiative, Globalization and Social Change. Faculty from across the college have drafted a 2020 proposal, drawing on input broadly from the university faculty. The draft has been submitted to the Dean and Provost, and it is referenced in the CAS plan.

It has long been recognized that today’s students must develop broad experience in a global context. This is the focus of the new initiative for Global Lehigh on campus, as well as the raison d’etre for the new 2020 proposal, Globalization and Social Change. The proposed program in Global Studies recognizes that Lehigh graduates must be adequately prepared to play an active
role in the world of the 21st century. For that, they will need an acute understanding of essential issues of global politics, broad linguistic and cultural skills, significant overseas experience, and both intellectual and cultural sophistication. The proposed curriculum will meet those requirements by insisting on courses in economics, international relations, language, and culture and requiring both study abroad and undergraduate research in more than one language. It is expected to appeal particularly to current IR majors, many of whom already study foreign language, as well as students of language and culture, liberal arts, and business. The program will help students develop a deeper and richer understanding of cultural, linguistic, and political diversity around the world and it should be a useful recruiting tool to attract students to Lehigh.

Faculty in both the IR and the MLL departments as well as the Dean of the College were consulted and have indicated strong support for the program.

II. DESCRIPTION OF PROPOSED NEW PROGRAM

The program requires a total of 16 courses for 60-64 credits. At least one semester of study abroad in an approved Lehigh program is required, as is undergraduate research in at least one foreign language. Each student will be provided with two major advisors—one each from IR and MLL.

Required courses (50-62 credits), as follows:

6 courses in International Relations (24 credits) as follows:

   IR 10
   IR 125
   IR 205
   Two IR advanced courses number 300-387 or 393.
   Eco 1

6 courses in Modern Languages and Literature (22-24 credits) as follows:

Four courses (16 credits) in one language, either Chinese, Japanese, Russian, Hebrew, Arabic, French (above the level of French 2), German (above the level of German 2) or Spanish (above the level of Spanish 2).

Two culture courses (6-8 credits), as follows:

—Any two courses from the following approved list of courses or in consultation with the MLL advisor: