

UNIVERSITY FACULTY SENATE FORMS

Academic Program Approval

This form is a routing document for the approval of new and revised academic programs. Proposing department should complete this form. For more information, call the Faculty Senate Office at 831-2921.

Submitted by: Paul T. Imhoff phone number X0541

Department: Civil and Environmental Engineering email address imhoff@udel.edu

Date: 11/19/2009

Action: change in curriculum for Bachelor of Environmental Engineering

(Example: add major/minor/concentration, delete major/minor/concentration, revise major/minor/concentration, academic unit name change, request for permanent status, policy change, etc.)

Effective

term 10F
(use format 04F, 05W)

Current degree Bachelor of Environmental Engineering
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed change leads to the degree of: Bachelor of Environmental Engineering
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed name: name of major and names of all concentrations remain the same – no proposed changes

Proposed new name for revised or new major / minor / concentration / academic unit
(if applicable)

Revising or Deleting:

Undergraduate major / Concentration: Environmental Engineering/
Environmental Facilities Design and Construction; Environmental Engineering/ Contaminant
Transport and Control Processes; Environmental Engineering/ Environmental Engineering
Biotechnology; Environmental Engineering/ Water Resources and Water Quality
(Example: Applied Music – Instrumental degree BMAS)

Undergraduate minor: _____
(Example: African Studies, Business Administration, English, Leadership, etc.)

Graduate Program Policy statement change: _____
(Must attach your Graduate Program Policy Statement)

Graduate Program of Study: _____
(Example: Animal Science: MS Animal Science: PHD Economics: MA Economics: PHD)

Graduate minor / concentration: _____

Note: all graduate studies proposals must include an electronic copy of the Graduate Program Policy Document, highlighting the changes made to the original policy document.

List new courses required for the new or revised curriculum. How do they support the overall program objectives of the major/minor/concentrations)?

(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter "None")

No new courses.

Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education: <http://www.ugs.udel.edu/gened/>

Identify other units affected by the proposed changes:

(Attach permission from the affected units. If no other unit is affected, enter "None")

The proposed changes will affect the Departments of Chemistry and Biochemistry, Biological Sciences, Mathematical Sciences, Bioresources Engineering, and Food and Resource Economics. Emails from each of the Department Chairs that give us permission to make the proposed changes to our curriculum are shown in the attachment to the memo to Michael Keefe and Michael Vaughn, Co-Chairs, Educational Activities Committee

Describe the rationale for the proposed program change(s):

(Explain your reasons for creating, revising, or deleting the curriculum or program.)

The reasons for the proposed program changes are described in the attached memo to Michael Keefe and Michael Vaughn, Co-Chairs, Educational Activities Committee.

Program Requirements:

(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the current curriculum and **include a side-by-side comparison** of the credit distribution before and after the proposed change.)

The proposed revised curriculum is shown in the attachment to the memo to Michael Keefe and Michael Vaughn, Co-Chairs, Educational Activities Committee. Course changes and credit hour changes are noted with the "tracking changes" option.

ROUTING AND AUTHORIZATION:

(Please do not remove supporting documentation.)

Department Chairperson [Signature] Date 11/19/08Dean of College [Signature] Date 11/19/08Chairperson, College Curriculum Committee [Signature] Date 11/23/09

Chairperson, Senate Com. on UG or GR Studies _____ Date _____

Chairperson, Senate Coordinating Com. _____ Date _____

Secretary, Faculty Senate _____ Date _____

Date of Senate Resolution _____ Date to be Effective _____

Registrar _____ Program Code _____ Date _____

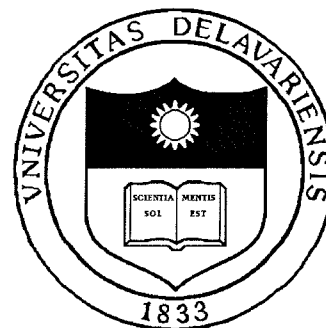
Vice Provost for Academic Affairs & International Programs _____ Date _____

Provost _____ Date _____

Board of Trustee Notification _____ Date _____

Revised 02/09/2009 /khs

Memorandum



November 19, 2009

TO: Tripp Shenton, Chair, Dept. of Civil and Environmental Engineering

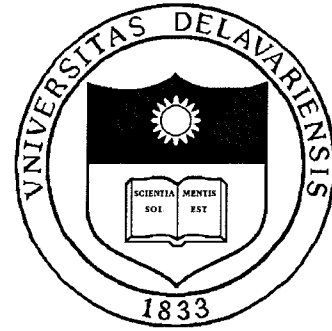
FROM: Paul T. Imhoff, Dept. Of Civil and Environmental Engineering

RE: Proposed revisions to Bachelor's Degree in Environmental Engineering

The Environmental Engineering and Water Resources Group proposes several changes to the Bachelor degree in Environmental Engineering. Most of these changes are due to changes in other course offerings on campus that necessitate changes in our curriculum.

These changes are described in the attached memorandum that was drafted for the College of Engineering's Educational Activities Committee. The first page of the memo lists the changes followed by justification for the changes on subsequent pages. Appended to this memorandum is a revised description for this major that would appear in the Undergraduate Catalog should the changes be approved.

Memorandum



November 19, 2009

TO: Michael Keefe and Michael Vaughn, Co-Chairs, Educational Activities Committee

FROM: Paul T. Imhoff, Dept. Of Civil and Environmental Engineering

RE: Proposed revisions to Bachelor's Degree in Environmental Engineering

The Department of Civil and Environmental Engineering proposes the following revisions to the Bachelor's Degree in Environmental Engineering:

- 1. Add Computer Applications course to all Concentrations to replace CIEG 126:** CIEG 126 Introduction to Surveying and Computer Aided Design (3 credits) is replaced with a Computer Elective that may be selected from either of the following: FREC 480 Geographic Information Systems in Natural Resource Management (GIS, 4 credits) or BREG 209 Technical and Computer Aided Drafting (AutoCAD, 3 credits).
- 2. Add BISC 207 to all Concentrations to replace BISC 302:** BISC 302 General Ecology (3 credits) is replaced with BISC 207 Introductory Biology I (4 credits).
- 3. Add CHEM 220 and CHEM 221 to replace CHEM 119 in Contaminant Transport and Control Processes Concentration:** CHEM 119 Quantitative Chemistry (3 credits) is a required course in the Contaminant Transport and Control Processes concentration in Environmental Engineering and is replaced with CHEM 220 Quantitative Analysis (3 credits) and CHEM 221 Quantitative Analysis Laboratory (1 credit).
- 4. Add MATH 351 to all Concentrations to replace MATH 302:** MATH 302 Ordinary Differential Equations (3 credits) is currently required for all concentrations in Environmental Engineering and will be replaced with MATH 351 Engineering Math I (3 credits).

These proposed changes stem from careful assessment of our existing curriculum in light of the changes in course offerings on campus, revised ABET criteria for Environmental Engineering programs, and input from environmental faculty and current students in the program. Below are presented the justifications for the revisions summarized above. Appended to this document is the complete tabulation of the curriculum as it should appear with the enactment of these revisions. Following this tabulation are emails from those departments affected by our curriculum changes approving the proposed revisions.

1. Add Computer Applications course to all Concentrations to replace CIEG 126.

CIEG 126 Introduction to Surveying and Computer Aided Design (3 credits) has been discontinued and is no longer offered by the Civil and Environmental Engineering Department for students in the Civil Engineering major. This course provided students with training in AutoCAD and Surveying. Based on an ABET Student Focus Group in Spring 2009, students noted the benefits of AutoCAD and GIS. Students have used both programs in internships and in work following graduation.

Environmental Engineering faculty discussed student feedback from the ABET Student Focus Group in Spring 2009, less formal feedback from graduates pursuing MS and PhD degrees, and our own assessment of computer skills in the profession. We believe students would be best served if allowed to select from one of two computer electives, depending on their interests: a course in AutoCAD or GIS. The proposed elective courses provide a solid introduction to these two topics. The selection of the most appropriate course for each student will be made in consultation with an academic advisor. Each course is acceptable for any of the Environmental Engineering concentrations.

2. Add BISC 207 to all Concentrations to replace BISC 302.

All concentrations in Environmental Engineering currently require BISC 302 General Ecology (3 credits). While we do not believe this is the best biology course for our students, because ABET required background in ecology this course was included in our curriculum. Now, however, the revised ABET accreditation criteria no longer state that background in ecology is required. Instead, students are required to obtain "proficiency in ... a biological science, e.g., microbiology, aquatic biology, toxicology, relevant to the program of study." With this change we believe our students are best served if they obtain proficiency in microbiology, training that begins with BISC 207 Introductory Biology I (4 credits). This course covers the molecular basis of life; structure and function of cells, including signal transduction pathways; energy transformations; classical Mendelian genetics; and the flow of information from DNA to RNA to proteins. The environmental faculty unanimously approved this change to our curriculum. By replacing BISC 302 with BISC 207 one credit hour is added to all concentrations. The total minimum credit hours will remain at 125 by reducing the number of credit hours required for technical electives by one for each concentration.

3. Add CHEM 220 and CHEM 221 to replace CHEM 119

CHEM 119 Quantitative Chemistry (3 credits) is a required course in the Contaminant Transport

and Control Processes concentration in Environmental Engineering. This course was recently discontinued. The sequence of chemistry courses in this concentration is identical to the chemistry training required for Chemical Engineering students. The Department of Chemical Engineering has replaced CHEM 119 with CHEM 220 Quantitative Analysis (3 credits) and CHEM 221 Quantitative Analysis Laboratory (1 credit). Based on the content in these courses, we also recommend that the CHEM 220/221 sequence replace CHEM 119. To maintain 125 credit hours in the program, the credit hours required for technical electives will be decreased from 12 to 11 total credits for the concentration in Contaminant Transport and Control Processes.

4. Add MATH 351 to replace MATH 302.

MATH 302 Ordinary Differential Equations (3 credits) is currently required for all concentrations in Environmental Engineering. MATH 351 Engineering Math I covers similar material and is taken by Civil and Mechanical Engineering students. In Spring 2009 Environmental Engineering faculty reviewed the content of both courses and concluded that the content in MATH 351 would be better preparation for our students. At a spring 2009 ABET Student Focus Group, juniors and seniors in the Environmental Engineering program were asked to comment on MATH 302 and MATH 351. Students unanimously recommended that MATH 351 replace MATH 302. Based on the feedback from these two constituencies, this change is recommended.

Revised Description of Environmental Engineering Curriculum in Catalog

The Civil and Environmental Engineering Department offers programs which lead to the degrees of Bachelor of Civil Engineering and Bachelor of Environmental Engineering, both with Honors Degree options, as well as minors in Civil Engineering and Environmental Engineering.

Traditionally, civil engineering has been identified with the planning and design of constructed facilities such as dams, bridges, buildings, roads, waterways, and tunnels. Modern civil engineering now addresses larger segments of societal infrastructure such as mass transportation systems, water resource exploration and management, environmental protection, coastal management, and off-shore structures. The Civil Engineering curriculum includes specialization options in structural engineering, geotechnical engineering, environmental engineering, hydraulic and ocean engineering, and transportation and construction engineering as shown by the listed Technical Electives.

The Educational Objectives of the Civil Engineering degree program are as follows:

1. Graduates will be prepared with a solid foundation in mathematics, sciences, and technical skills needed to analyze and design civil infrastructure systems.
2. Graduates will possess strong written, oral, and graphical communications skills, and will be able to function on multi-disciplinary teams.
3. Graduates will be familiar with current and emerging socioeconomic issues and the global context in which civil engineering is practiced.
4. Graduates will have an understanding of professional ethics and their societal responsibilities as a practicing engineer.
5. Graduates will have the ability to obtain professional licensure, will recognize the need for engaging in life-long learning, and will have the ability to assume leadership roles in and outside of the profession.
6. Graduates will have the necessary qualifications for employment in civil engineering and related professions and for entry into advanced studies.

Areas concerned with pollution control, water supply, and water resource management are now considered to comprise the distinct discipline of Environmental Engineering. The Environmental Engineering curriculum is focused on causes, control, and prevention of environmental contamination, environmental facilities design and construction, and pollution transport and control processes.

The Educational Objectives of the Environmental Engineering degree program are as follows:

1. Graduates will be prepared with a solid foundation in mathematics, sciences, and technical skills needed to analyze and design environmental engineering systems.

2. Graduates will possess strong written and oral communications skills.
3. Graduates will be familiar with current and emerging environmental engineering and global issues, and have an understanding of ethical and societal responsibilities.
4. Graduates will have the ability to obtain professional licensure, and will recognize the need for engaging in life-long learning.
5. Graduates will have the necessary qualifications for employment in environmental engineering and related professions, for entry into advanced studies, and for assuming eventual leadership roles in their professions.

DEPARTMENTAL POLICES

In general, 300- and 400-level CIEG courses are open only to students majoring in civil or environmental engineering. Students who have declared a civil engineering or an environmental engineering minor and students enrolled in other departments of the College of Engineering may be enrolled in 300- and 400-level courses with the approval of their home department advisor. In some instances, other students may be permitted to enroll in selected 300 and 400-level courses, but they must have the permission of both the course instructor and the chair of the Civil and Environmental Engineering Department.

The Department has developed standards that require minimum grades in certain courses. These standards are intended to promote success in the sequential development of the curriculum. The requirements for the civil and environmental engineering majors are as follows:

CIVIL ENGINEERING

- A minimum grade of C- in MATH 241 and MATH 242
- A minimum grade of C- in CHEM 103.
- A minimum grade of C- in PHYS 207.

ENVIRONMENTAL ENGINEERING

- A minimum grade of C- in MATH 241, MATH 242, and MATH 243
- A minimum grade of C- in CHEM 111 and CHEM 112 or CHEM 103 and CHEM 104
- A minimum grade of C- in PHYS 207
- A minimum grade of C- in CIEG 233

BACHELOR OF CIVIL ENGINEERING - CIVIL ENGINEERING

TECHNICAL ELECTIVES

HONORS BACHELOR OF CIVIL ENGINEERING

MINOR IN CIVIL ENGINEERING

BACHELOR OF ENVIRONMENTAL ENGINEERING: ALL CONCENTRATIONS

TECHNICAL ELECTIVES FOR CONCENTRATIONS

HONORS BACHELOR OF ENVIRONMENTAL ENGINEERING

MINOR IN ENVIRONMENTAL ENGINEERING

**UNIVERSITY, COLLEGE, AND MAJOR REQUIREMENTS FOR ALL
ENVIRONMENTAL ENGINEERING BACHELORS DEGREE CONCENTRATIONS**

CURRICULUM CREDITS

UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing (minimum grade C-) 3

First Year Experience (FYE) 0-4

Discovery Learning Experience (DLE) 3

Multi-cultural Courses 3

COLLEGE REQUIREMENTS

Breadth Requirements

See: College Breadth Requirements. One of these courses may fulfill the University multi-cultural requirement. (See List).

MAJOR REQUIREMENTS

Core Courses for the Major:

ENGL 410 Technical Writing 3

MATH 241 Analytic Geometry and Calculus 4

MATH 242 Analytic Geometry and Calculus B 4

MATH 243 Analytic Geometry and Calculus C 4

MATH 302 MATH 351 Ordinary Differential Equations Engineering Math I 3

PHYS 207 Fundamentals of Physics 4

BISC 302 BISC 207 Introductory Biology 4 General

CISC 106 General Computer Science for Engineers 3

CHEG 231 Chemical Engineering Thermodynamics 3

CIEG 126 Computer Elective (either of the following two):

FREC 480 Geographic Information Systems in Natural Resource Management 4

BREG 209 Technical and Computer Aided Drafting 3

CAD, GIS, Surveying 3

EGGG 101 Introduction to Engineering 2

CIEG 211 Statics 3

CIEG 233 Environmental Engineering Processes 3

CIEG 305 Fluid Mechanics 3
CIEG 306 Fluid Mechanics Laboratory 1
CIEG 315 Probability and Statistics for Engineers 3
CIEG 337 Environmental Engineering Laboratory 3
CIEG 434 Air Pollution Control 3
CIEG 436 Recycling & Waste Management 3
CIEG 437 Water & Wastewater Quality 3
CIEG 438 Water and Wastewater Engineering 3
CIEG 440 Water Resources Engineering 3
CIEG 461 Senior Design Project 2
CIEG 461 Senior Design Project 2

Beyond these core courses, one of the four concentrations listed below must also be chosen:

Contaminant Transport and Control Processes

- Environmental Facilities Design and Construction
- Environmental Biotechnology
- Water Resources and Water Quality

The concentration determines which chemistry sequence is needed and which technical electives should be taken as a core group. For the freshman chemistry courses, if a student's chemistry background is sufficiently strong entering students they are advised to take the CHEM 111/CHEM 112/CHEM 119, but CHEM 103/CHEM 104 are acceptable for most concentrations.

Each concentration also requires additional technical elective courses to provide the desired focus at the intermediate and advanced levels. Beyond the set of specific core technical electives for the concentration, the remaining technical electives can then be chosen to further pursue this direction of study, or to provide a more diversified environmental engineering education. All technical electives must be upper level courses in engineering, the sciences, computer science, or mathematics.

The chemistry courses and the core technical electives are listed below for each concentration.

CREDITS TO TOTAL A MINIMUM OF 125

BACHELOR OF ENVIRONMENTAL ENGINEERING - ENVIRONMENTAL
ENGINEERING (CONTAMINANT TRANSPORT AND CONTROL PROCESSES)

BACHELOR OF ENVIRONMENTAL ENGINEERING - ENVIRONMENTAL
ENGINEERING (ENVIRONMENTAL FACILITIES DESIGN AND CONSTRUCTION)

BACHELOR OF ENVIRONMENTAL ENGINEERING - ENVIRONMENTAL
ENGINEERING (ENVIRONMENTAL BIOTECHNOLOGY)

BACHELOR OF ENVIRONMENTAL ENGINEERING - ENVIRONMENTAL
ENGINEERING (WATER RESOURCES AND WATER QUALITY)

DEGREE: BACHELOR OF ENVIRONMENTAL ENGINEERING
MAJOR: ENVIRONMENTAL ENGINEERING
CONCENTRATION: CONTAMINANT TRANSPORT AND CONTROL PROCESSES

Physical and chemical processes for pollutant transport and remediation.

CURRICULUM CREDITS

See University and College requirements.

CHEM 111 General Chemistry** 3

~~CHEM 119 Quantitative Chemistry I** 3~~

CHEM 112 General Chemistry** 3

CHEM 220 Quantitative Analysis 3

CHEM 221 Quantitative Analysis Laboratory 1

CHEG 325 Chemical Engineering Thermodynamics 3

CHEG 332 Chemical Engineering Kinetics 3

CHEG 342 Heat and Mass Transfer 3

CHEG 443 Physical Chemistry 1 3

Additional technical electives, incl. 3 cr. Earth Science* ~~12~~100

**The alternative coursework CHEM 103/CHEM 104/CHEM 220 is also acceptable.

*Advisor should be consulted to assure that Earth Science requirement is met through an appropriate technical elective.

DEGREE: BACHELOR OF ENVIRONMENTAL ENGINEERING
MAJOR: ENVIRONMENTAL ENGINEERING
CONCENTRATION: ENVIRONMENTAL FACILITIES DESIGN AND CONSTRUCTION

Engineering and constructing the systems for air, water, and wastewater purification.

CURRICULUM CREDITS

See University and College requirements.

CHEM 103 General Chemistry 4

CHEM 104 General Chemistry 4

CIEG 212 Solid Mechanics 3

CIEG 213 Civil Engineering Materials Lab 1

CIEG 301 Structural Analysis 4

CIEG 302 Structural Design 4

CIEG 320 Soil Mechanics 3

CIEG 323 Soil Mechanics Laboratory 1

Additional technical electives, incl. 3 cr. Earth Science* 98

*Advisor should be consulted to assure that Earth Science requirement is met through an appropriate technical elective.

DEGREE: BACHELOR OF ENVIRONMENTAL ENGINEERING

MAJOR: ENVIRONMENTAL ENGINEERING

CONCENTRATION: ENVIRONMENTAL BIOTECHNOLOGY

Biological and microbial aspects of contaminant behavior in natural and engineered systems.

CURRICULUMCREDITS

See University and College requirements.

CHEM 103 General Chemistry 4

CHEM 104 General Chemistry 4

CHEM 331 Organic Chemistry 3

CHEM 333 Organic Chemistry Lab 1

PLSC 319 Environmental Soil Microbiology 4

BISC 300 Introduction to Microbiology 4

CHEM 342 Introduction to Biochemistry 3

| Additional technical electives incl. 3 cr. Engg topics* 409

*Advisor should be consulted to assure that Engineering Topic requirement is met through appropriate technical

DEGREE: BACHELOR OF ENVIRONMENTAL ENGINEERING

MAJOR: ENVIRONMENTAL ENGINEERING

CONCENTRATION: WATER RESOURCES AND WATER QUALITY

Technical issues associated with providing, maintaining, and improving the supply and quality of surface and groundwaters.

CURRICULUMCREDITS

See University and College requirements.

CHEM 103 General Chemistry 4

CHEM 104 General Chemistry 4

EGTE 321 Storm Water Management 4

CIEG 468 Principles of Water Quality Criteria 3

CIEG 498 Groundwater Flow and Contaminant Transport 3

CIEG 430 Water Quality Modeling 3

| Additional technical electives 4211

TECHNICAL ELECTIVES

Additional Recommended Technical Electives

Students in any of the concentrations should consider the technical electives listed for the other concentrations. In addition, the following courses qualify as technical electives.

BISC 301 Molecular Biology of Cells
BISC 311 Molecular Biology for Engineers
BISC 641 Microbial Ecology
CHEM 444 Physical Chemistry
CIEG 321 Geotechnical Engineering
CIEG 467 Industrial Ecology - Science of Environmental Sustainability
CIEG 433 Hazardous Waste Management
CIEG 482 Systems Design and Operation
CIEG 636 Biological Aspects of Environmental Engineering
GEOL 421 Environmental and Applied Geology
GEOL 446 General Geochemistry
MATH 352 Engineering Mathematics II
MATH 426 Introduction to Numerical Analysis and Algorithmic Computation
MSEG 302 Materials Science
PLSC 608 Environmental Soil Chemistry
PLSC 619 Soil Microbiology

Note: This list is not exhaustive. Consult your advisor.

HONORS BACHELOR OF ENVIRONMENTAL ENGINEERING

A recipient of the Honors Bachelor of Environmental Engineering must satisfy the following:

1. All requirements for the Bachelor of Environmental Engineering degree.
2. All generic University requirements for the Honors Degree (See Description). Graduate courses approved for this purpose by the department may be counted as Honors courses.
3. The Honors Thesis must be within the disciplines of Civil and Environmental Engineering and successfully presented orally in front of a committee approved by the department Undergraduate Committee.

Email approval for course changes affecting Department of Chemistry and Biochemistry

Dear Dr. Chiu,

We shall be pleased to welcome your ENEG majors into CHEM 220/221 in lieu of the discontinued CHEM 119. I hope this addresses your concerns.

With best regards, Klaus Theopold

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Klaus H. Theopold, Professor and Chair  
Department of Chemistry and Biochemistry,  
University of Delaware, Newark, DE 19716, USA.  
Phone: (302)831-1546 (or 1247); Fax: (302)831-6335  
<http://www.udel.edu/theopold/index.html>

On Nov 6, 2009, at 3:31 PM, Pei Chiu wrote:

Dear Dr. Theopold,

Per our phone conversation earlier today, I am writing to request your written approval (email would do) to allow our environmental engineering (ENEG) students to take CHEM 220 and CHEM 221 in place of CHEM 119, which is no longer offered.

CHEM 119 Quantitative Chemistry (3 credits) is a required course in the Contaminant Transport and Control Processes concentration in Environmental Engineering. This course was recently discontinued. The sequence of chemistry courses in this concentration is identical to the chemistry training required for Chemical Engineering students. The Department of Chemical Engineering has replaced CHEM 119 with CHEM 220 Quantitative Analysis (3 credits) and CHEM 221 Quantitative Analysis Laboratory (1 credit). Based on the content in these courses, we also would like to substitute the CHEM 220/221 sequence for CHEM 119.

The number of ENEG majors in the Contaminant Transport and Control Processes concentration has been relatively small (fewer than 4 per year for the past 5 years).

We would much appreciate it if you could email me back at your earliest convenience.

Many thanks,

Pei C. Chiu, Ph.D., Professor  
Department of Civil & Environmental Engineering  
University of Delaware  
Newark, DE 19716

Phone: 302-831-3104  
Fax: 302-831-3640  
E-mail: [pei@udel.edu](mailto:pei@udel.edu)



## Email approval for course changes affecting Department of Biological Sciences

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----- Forwarded Message

**From:** "David W. Smith" <[dwsmith@UDel.Edu](mailto:dwsmith@UDel.Edu)>

**Date:** Tue, 10 Nov 2009 16:26:38 -0500

**To:** Pei Chiu <[pei@udel.edu](mailto:pei@udel.edu)>

**Subject:** RE: A request regarding BISC 207

Pei,

The Biology department is happy to have your Environmental Engineering students take BISC207 instead of BISC302. Our only restriction, which must have no exceptions is that your students take BISC207 in the spring. I see that this is your plan and therefore there should be no problem.

Dave

Dr. David W. Smith  
Undergraduate Program Director  
Department of Biological Sciences  
University of Delaware

I am writing to request a written approval (email would do) from Biology to allow our environmental engineering (ENEG) students to take BISC 207 in place of BISC 302.

Currently, all ENEG majors are required to take BISC 302 General Ecology (3 credits) in the Spring semester of their Sophomore year. Based on recent faculty assessment of course content and student feedback, we believe that BISC 207 would be a more appropriate course for ENEG students. We therefore propose to substitute BISC 207 for BISC 302.

The number of ENEG sophomores has been between 10 and 20 per year for the past 5 years. BISC 302 is currently scheduled in the Spring semester, and so will BISC 207 if the substitution is approved.

I would much appreciate it if you could email me back at your earliest convenience. Please feel free to contact me if you have any question or concern.

Many thanks,

Pei C. Chiu, Ph.D., Professor  
Department of Civil & Environmental Engineering  
University of Delaware  
Newark, DE 19716

Phone: 302-831-3104  
Fax: 302-831-3640  
E-mail: [pei@udel.edu](mailto:pei@udel.edu)  
Webpage: [research.ce.udel.edu/~pei/](http://research.ce.udel.edu/~pei/)

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## Email approval for course changes affecting Department of Mathematical Sciences

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**From:** Peter Monk <[monk@math.udel.edu](mailto:monk@math.udel.edu)>  
**Date:** Thu, 12 Nov 2009 15:58:26 -0500  
**To:** Pei Chiu <[pei@udel.edu](mailto:pei@udel.edu)>  
**Subject:** Re: MATH 351 for ENEG

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Dear Professor Chiu

The Department of Mathematical Sciences supports your proposal to replace MATH 302 with MATH 351 in the ENEG curriculum. This change will require us to open another section of MATH 351 (but unfortunately will not allow us to close a section of MATH 302) so this will require additional resources. Associate Dean Doren from the College of Arts and Sciences has approved extra funds to help cover the expanded offering.

Please let me know if this e-mail suffices for your needs.

Sincerely yours  
Peter Monk  
Chair, Mathematical Sciences

On Nov 10, 2009, at 9:12 PM, Pei Chiu wrote:

Professor Monk,

Thank you for getting back to me. I will call you between 2 and 3 tomorrow to discuss this.

Thanks again.

Pei

On 11/10/09 7:05 PM, "Peter Monk" <[monk@math.udel.edu](mailto:monk@math.udel.edu)> wrote:

Dear Professor Chiu

My sincere apologies for the delay in responding to your e-mail. We would be delighted to have your students in MATH351, but will need to put on an extra section. So there are resource implications. Do we need to discuss further? I'll be in my office 2-3pm Wednesday for sure (office hrs).

Sincerely  
Peter Monk

On Nov 6, 2009, at 3:59 PM, Pei Chiu wrote:

Dear Dr. Monk,

I am writing to request your written approval (email would do) to allow our environmental engineering (ENEG) students to take MATH 351 in place of MATH 302.

MATH 302 Ordinary Differential Equations (3 credits) is currently required for all ENEG sophomores. MATH 351 Engineering Math I covers similar material and is taken by Civil and Mechanical Engineering students. Based on a recent (Spring '09) faculty assessment and student feedback, it was concluded that the content in MATH 351 would be better suited for ENEG majors. We therefore would like to replace MATH 302 with MATH 351 in the curriculum.

The number of ENEG sophomores has been between 10 and 20 per year for the past 5 years.

We would much appreciate it if you could email me back at your earliest convenience. Please feel free to contact me if you have questions/concerns.

Many thanks,

Pei C. Chiu, Ph.D., Professor  
Department of Civil & Environmental Engineering  
University of Delaware  
Newark, DE 19716

Phone: 302-831-3104

Fax: 302-831-3640

E-mail: [pei@udel.edu](mailto:pei@udel.edu)

Webpage: [research.ce.udel.edu/~pei/](http://research.ce.udel.edu/~pei/)

Environmental & Water Resources Engineering at UD: [www.ce.udel.edu/ewre/](http://www.ce.udel.edu/ewre/)  
<<http://www.ce.udel.edu/ewre/>> <<http://www.ce.udel.edu/ewre/>>

## Email approval for course changes affecting Department of Bioresources Engineering

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Paul

We are willing to take the Environmental Engineering majors in BREG 209. The number of students should not present a problem.

Bill

William F. Ritter

Bioresources Engineering Department

University of Delaware

Newark, DE. 19716

TEL:302-831-2468  
FAX:302-831-2469  
E-Mail:writter@udel.edu

----- Original message -----

>Date: Wed, 18 Nov 2009 10:44:38 -0500  
>From: "Imhoff, Paul T." <imhoff@UDe1.Edu>  
>Subject: Permisison to Send Students to BREG 209  
>To: Bill Ritter <'William.ritter@udel.edu'>

>

> Hi Bill,

>

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> This email follows the voice mail message I left for
> your today.
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&gt;

>

&gt;

> The undergraduate program in Environmental  
> Engineering currently has 15-20 students per class.  
> In the spring semester of their sophomore year we  
> would like these students to have the option of  
> taking BREG 209 Technical and Computer Aided  
> Drafting. We have been sending about A 1/2 of our  
> students to BREG 209 in the past and they have done  
> well in the course. We anticipate approximately 7-10  
> students who would register for this course every  
> spring, although it may go as high as 15 students  
> in some years.

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> Please let me know if you would be willing to take
> our students in this class. Students would satisfy
> all pre-requisites for the course.
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&gt;

> Best wishes,

&gt;

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&gt;

> Paul

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—

> Paul T. Imhoff, Ph.D., P.E.

> Associate Professor  
> Department of Civil & Environmental Engineering  
> University of Delaware  
> Newark, DE 19716  
>  
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