



The College at
BROCKPORT
 STATE UNIVERSITY OF NEW YORK
 College Senate
 350 New Campus Drive
 Brockport, NY 14420-2925

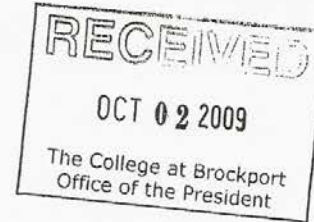
Resolution # 02
 2009-2010
 College Senate

New Resolution:
 Supersedes Res #:

TO: Dr. John R. Halstead, College President

FROM: The College Senate: *September 28, 2009*

RE: I. Formal Resolution (*Act of Determination*)
 II. Recommendation (*Urging the Fitness of*)
 → III. Other, For Your Information (*Notice, Request, Report, etc.*)



SUBJ: **Replacement of ESC 493 in Requirements for MET, ESC, WTR, and GEL** (routing number #02 09-10 UC)

Signed: *Steven Lewis*
 (*Steven Lewis, 2009-10 College Senate President*)

Date: 10/01/09

Please fill out the bottom portion and follow the distribution instructions at the end of this page.

TO: Steven Lewis, The College Senate President

FROM: John R. Halstead, College President

RE: I. Decision and Action Taken on Formal Resolution (*circle choice*)
 (a) Accepted - Implementation Effective Date: Fall 2010
 b. Deferred for discussion with the Faculty Senate on ___/___/___
 c. Unacceptable for the reasons contained in the attached explanation

→ II, III. Response to Recommendation or Other/FYI (*circle choice*)

(a) Received and acknowledged 10/13/09
 b. Comment: _____

Signed: *John R. Halstead*
 (*Dr. John R. Halstead, President, The College at Brockport*)

Date: 10/15/09

DISTRIBUTION

Upon approval, resolutions will be posted to the College Senate Web at <http://www.brockport.edu/collegesenate/resolutions..>

**COLLEGE SENATE OFFICE
RESOLUTION PROPOSAL COVER PAGE**

Routing Number <i>Routing # assigned by Senate Office</i>	#02 09-10 UC <i>Use routing number and title in all reference to this proposal.</i>
Replaces Resolution	#

DEADLINE FOR SUBMISSIONS: FEBRUARY 28

Incomplete proposals or proposals received after the deadline may not be reviewed until next semester.

INSTRUCTIONS – please, no multiple attachments – each proposal must be submitted electronically as one document.

- Submit only complete proposals. Include support letters from department chair and dean.
- Proposals must be prepared individually in Word format using committee guidelines available at brockport.edu/collegesenate/proposal.html.
- Fill out this cover page for each proposal and insert it electronically as the front page of your document. (collegesenate/proposal.html)
- Email whole proposal with cover page as one document to senate@brockport.edu and facprez@brockport.edu.
- All updates must be resubmitted to the Senate office with the original cover page including routing number.
- Questions? Call the Senate office at 395-2586 or the appropriate committee chairperson.

1. **PROPOSAL TITLE:** Please be somewhat descriptive, ie. *Graduate Probation/Dismissal Proposal* rather than *Graduate Proposal*.

Replacement of ESC 493 in requirements for MET, ESC, WTR, and GEL

2. **BRIEF DESCRIPTION OF PROPOSAL:**

Replace the required 2-credit ESC 493 Seminar in Earth Sciences Problems with a 1-credit Senior Research course and a 1-credit Senior Seminar course for all majors in the Department of the Earth Sciences.
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3. **WILL ADDITIONAL RESOURCES AFFECTING BUDGET BE NEEDED?** ___ NO ___ YES EXPLAIN YES

4. **HOW WILL THIS AFFECT TRANSFER STUDENTS:**

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5. **ANTICIPATED EFFECTIVE DATE:**

Fall 2010

6. **SUBMISSION & REVISION DATES:** PLEASE PUT A DATE ON ALL UPDATED DOCUMENTS TO AVOID CONFUSION.

<i>First Submission</i>	<i>Updated on</i>	<i>Updated on</i>	<i>Updated on</i>
August 31, 2009			

7. **SUBMITTED BY: (contact person)**

<i>Name</i>	<i>Department</i>	<i>Phone</i>	<i>Email</i>
Whitney Autin	Earth Science	5738	dirtguy@esc.brockport.edu

8. **COMMITTEES TO COPY: (Senate office use only)**

Standing Committee	Forwarded For Approval To	Dates
<input type="checkbox"/> Enrollment Planning & Policies	Committee for approval	8/31/09
<input type="checkbox"/> Faculty & Professional Staff Policies	Executive Committee	9/21/09
<input type="checkbox"/> General Education & Curriculum Policies *	GED to Vice Provost	NA
<input type="checkbox"/> Graduate Curriculum & Policies	Senate	9/28/09 - Announcement
<input type="checkbox"/> Student Policies	College President	10/2/09
<input checked="" type="checkbox"/> Undergraduate Curriculum & Policies	OTHER	
<small>*follow special Gen Ed procedures for submission of General Education proposals at "How to Submit Proposals" on our Website.</small>		
	REJECTED -WITHDRAWN	

NOTES:

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Executive Summary

The Department of the Earth Sciences has had a capstone course for several years, ESC 493 (2 credits). It requires that students work with a faculty mentor to develop and complete a research project on an earth sciences related topic, and then present that research to the class and the department faculty. The course is typically taken during the student's last semester prior to graduation. We propose to split the course into two 1-hour courses, a research methods component and a seminar component, spread over the student's last two semesters. We would like to implement this change in the Fall 2010 for students who will graduate in May 2010. The 2-credit ESC 493 will be offered in Fall 2010 for students who plan to graduate in December 2010.

Explanation of Changes

Independent research projects are required for ESC 493, a requirement for all majors in The Department of the Earth Sciences. Typically students enter the course with a general idea for a research project, spend a couple of weeks defining a research proposal, gather data for 6-8 weeks, and then analyze the data to formulate conclusions. Students present the results of their research orally and in writing at the end of the semester. The more successful students actually identify a mentor and begin their research project prior to entering the course. These students are more thorough in their work, have more complete analyses, and leave with a better understanding of the research process. We would like to extend this opportunity to all of our students.

We propose to split the current course ESC 493 (2 credits) into two 1-credit courses to be taken sequentially, ESC 494 (Senior Research) and ESC 495 (Senior Seminar). Both classes will be offered every semester, and students registered in each course will be grouped into a single cohort with a single instructor and one seminar time slot (Monday 4 to 6 pm). This is the present scheduling arrangement we have been using for the last decade.

The first course (ESC 494 Senior Research), will be taught as a research methods seminar by an instructor in collaboration with a faculty mentor. In that course, the student will identify a research problem, produce an appropriate literature review, formulate a hypothesis, design a method to test the hypothesis, and collect preliminary data. At the end of the semester, students will produce a completed research proposal, have a set plan for data collection and analysis, and produce an annotated bibliography of literature that they have reviewed for their project.

In the second course (ESC 495 Senior Seminar), the students will finish collecting data, analyze the data, and evaluate their hypothesis. The results of the research will be presented orally and as a written research report as is currently done in ESC 493. Students will be able to compare project results, discuss numerical and statistical analyses, and provide and receive feedback with other students in the seminar, thereby maximizing interaction among student cohorts.

By spreading the workload over two semesters, students will be able to give more thought to developing their research projects and have more time to acquire the necessary background information and data. It will not substantially change the workload for faculty or students. It will give students the opportunity to mature as researchers, spend more time analyzing their data, and share their discoveries with their peers. Currently, faculty mentors work with students on senior research projects during the semester in which the students are enrolled in ESC 493. Faculty workload will not substantially change, but will be spread over two semesters rather than one.

Impact of Change on Transfer Students

All students take ESC 493 during their final semester at SUNY Brockport as a capstone course. Under the proposed changes, transfer students will take the two 1-credit courses in their Senior year. It will not increase the number of credits required, nor have a major impact on scheduling. As with other students, transfer students will have a longer time to work with a faculty member to develop and implement their research.

Side-by-Side Comparisons

EARTH SCIENCE MAJOR

Current Requirements

REQUIRED MAJOR COURSES	
ESC 200 Intro to Oceanography	3
ESC 211 Intro to Meteorology	4
GEL 201 Intro to Physical Geology	4
ESC 350 Computational Methods in the Field Sciences	3
ESC 391 Writing in the Earth Sciences	1
Meteorology elective (ESC 313, 420, or 421)	3 or 4
Geology elective (GEL 302, 312, or 363)	3 or 4
Water Resources elective (ESC 325, 412, or GEL 462)	3 or 4
<i>ESC 493 Seminar in Earth Science Problems</i>	<i>2</i>
Electives by advisement	3-6
TOTAL	32
REQUIRED CO-REQUISITE COURSES	
MTH 201 Calculus I	4
CHM 205-206 College Chemistry I & II	8
PHS 205-210 Intro to Physics I & II	8
TOTAL	20

Proposed Requirements

REQUIRED MAJOR COURSES	
ESC 200 Intro to Oceanography	3
ESC 211 Intro to Meteorology	4
GEL 201 Intro to Physical Geology	4
ESC 350 Computational Methods in the Field Sciences	3
ESC 391 Writing in the Earth Sciences	1
Meteorology elective (ESC 313, 420, or 421)	3 or 4
Geology elective (GEL 302, 312, or 363)	3 or 4
Water Resources elective (ESC 325, 412, or GEL 462)	3 or 4
<i>ESC 494 Senior Research</i>	<i>1</i>
<i>ESC 495 Senior Seminar</i>	<i>1</i>
Electives by advisement	3-6
TOTAL	32
REQUIRED CO-REQUISITE COURSES	
MTH 201 Calculus I	4
CHM 205-206 College Chemistry I & II	8
PHS 205-210 Intro to Physics I & II	8
TOTAL	20

GEOLOGY MAJOR

Current Requirements

REQUIRED MAJOR COURSES	
GEL 201 Intro to Physical Geology	4
GEL 302 Historical Geology	4
GEL 306 Intro to Paleontology	4
GEL 312 Mineral Science	4
GEL 408 Structural Geology	4
GEL 411 Stratigraphy and Sedimentology	4
ESC 350 Computational Methods in the Field Sciences	3
ESC 391 Writing in the Earth Sciences	1
<i>ESC 493 Seminar in Earth Science Problems</i>	<i>2</i>
Designated electives by advisement	12
TOTAL	42
REQUIRED CO-REQUISITE COURSES	
MTH 201-202 Calculus I & II	8
CHM 205-206 College Chemistry I & II	8
PHS 235-240 Physics I & II	8
TOTAL	24

Proposed Requirements

REQUIRED MAJOR COURSES	
GEL 201 Intro to Physical Geology	4
GEL 302 Historical Geology	4
GEL 306 Intro to Paleontology	4
GEL 312 Mineral Science	4
GEL 408 Structural Geology	4
GEL 411 Stratigraphy and Sedimentology	4
ESC 350 Computational Methods in the Field Sciences	3
ESC 391 Writing in the Earth Sciences	1
<i>ESC 494 Senior Research</i>	<i>1</i>
<i>ESC 495 Senior Seminar</i>	<i>1</i>
Designated electives by advisement	12
TOTAL	42
REQUIRED CO-REQUISITE COURSES	
MTH 201-202 Calculus I & II	8
CHM 205-206 College Chemistry I & II	8
PHS 235-240 Physics I & II	8
TOTAL	24

METEOROLOGY MAJOR

Current Requirements

REQUIRED MAJOR COURSES	
ESC 211 Intro to Meteorology	4
ESC 311 Synoptic Meteorology I	4
ESC 312 Synoptic Meteorology II	4
ESC 313 - 314 Climatology & Climatology Laboratory	4
ESC 350 Computational Methods in the Field Sciences	3
ESC 351 Laboratory in Scientific Programming	1
ESC 391 Writing in the Earth Sciences	1
ESC 415 Physical Meteorology	3
ESC 416 Thermodynamics and the Boundary Layer	3
ESC 417 Dynamic Meteorology	3
ESC 420 Atmospheric Sensing Methods	4
ESC 490 Weather Briefing	1
<i>ESC 493 Seminar in Earth Science Problems</i>	<i>2</i>
Designated electives by advisement	6
TOTAL	43
REQUIRED CO-REQUISITE COURSES	
MTH 201-202 Calculus I & II	8
MTH 255 Differential Equations	3
CHM 205 College Chemistry I	4
PHS 235-240 Physics I & II	8
TOTAL	23

Proposed Requirements

REQUIRED MAJOR COURSES	
ESC 211 Intro to Meteorology	4
ESC 311 Synoptic Meteorology I	4
ESC 312 Synoptic Meteorology II	4
ESC 313 - 314 Climatology & Climatology Laboratory	4
ESC 350 Computational Methods in the Field Sciences	3
ESC 351 Laboratory in Scientific Programming	1
ESC 391 Writing in the Earth Sciences	1
ESC 415 Physical Meteorology	3
ESC 416 Thermodynamics and the Boundary Layer	3
ESC 417 Dynamic Meteorology	3
ESC 420 Atmospheric Sensing Methods	4
ESC 490 Weather Briefing	1
<i>ESC 494 Senior Research</i>	<i>1</i>
<i>ESC 495 Senior Seminar</i>	<i>1</i>
Designated electives by advisement	6
TOTAL	43
REQUIRED CO-REQUISITE COURSES	
MTH 201-202 Calculus I & II	8
MTH 255 Differential Equations	3
CHM 205 College Chemistry I	4
PHS 235-240 Physics I & II	8
TOTAL	23

WATER RESOURCES MAJOR

Current Requirements

REQUIRED MAJOR COURSES	Credits
GEL 201 Introduction to Physical Geology	4
ESC 211 Introduction to Meteorology	4
ESC 350 Computational Methods in the Field Sciences	3
ESC 351 Lab Experience in Scientific Programming	1
ESC 391 Writing in the Earth Sciences	1
ESC 412 Hydrology	4
ESC 418 Watershed Sciences	3
GEL 462 Groundwater	4
<i>ESC 493 Seminar in Earth Sciences Problems</i>	<i>2</i>
Designated electives by advisement	17
TOTAL	43
REQUIRED CO-REQUISITE COURSES	Credits
MTH 201-202 Calculus I & II	8
CHM 205-206 College Chemistry I & II	8
PHS 235-240 Physics I & II	8
TOTAL	24

Proposed Requirements

REQUIRED MAJOR COURSES	Credits
GEL 201 Introduction to Physical Geology	4
ESC 211 Introduction to Meteorology	4
ESC 350 Computational Methods in the Field Sciences	3
ESC 351 Lab Experiences in Scientific Programming	1
ESC 391 Writing in the Earth Sciences	1
ESC 412 Hydrology	4
ESC 418 Watershed Sciences	3
GEL 462 Groundwater	4
<i>ESC 494 Senior Research</i>	<i>1</i>
<i>ESC 495 Senior Seminar</i>	<i>1</i>
Designated electives by advisement	17
TOTAL	43
REQUIRED CO-REQUISITE COURSES	Credits
MTH 201-202 Calculus I & II	8
CHM 205-206 College Chemistry I & II	8
PHS 235-240 Physics I & II	8
TOTAL	24

WATER RESOURCES MAJOR

Current Requirements

REQUIRED MAJOR COURSES	Credits
GEL 201 Introduction to Physical Geology	4
ESC 211 Introduction to Meteorology	4
ESC 350 Computational Methods in the Field Sciences	3
ESC 351 Lab Experience in Scientific Programming	1
ESC 391 Writing in the Earth Sciences	1
ESC 412 Hydrology	4
ESC 418 Watershed Sciences	3
GEL 462 Groundwater	4
<i>ESC 493 Seminar in Earth Sciences Problems</i>	<i>2</i>
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MTH 201-202 Calculus I & II	8
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ESC 351 Lab Experiences in Scientific Programming	1
ESC 391 Writing in the Earth Sciences	1
ESC 412 Hydrology	4
ESC 418 Watershed Sciences	3
GEL 462 Groundwater	4
<i>ESC 494 Senior Research</i>	<i>1</i>
<i>ESC 495 Senior Seminar</i>	<i>1</i>
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PHS 235-240 Physics I & II	8
TOTAL	24