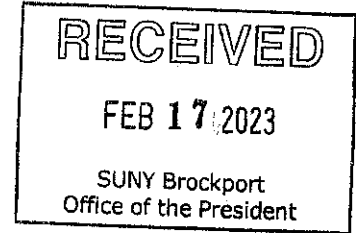


350 New Campus Drive  
 Brockport, New York 14420  
 585-395-2586 \* 585-395-2006 (fax)  
 senate@brockport.edu  
 brockport.edu/collegesenate

Resolution 2022-23 #12  
**College Senate**

Supersedes Res #: \_\_\_\_\_



TO: Dr. Heidi Macpherson, College President  
 FROM: The College Senate:  
 RE: **→** I. Formal Resolution (*Act of Determination*)  
 II. Recommendation (*Urging the Fitness of*)  
 III. Other, For Your Information (*Notice, Request, Report, etc.*)  
 SUBJ: ***Climate Studies Major*** (#01\_22-23UC)  
 Implementation Effective Date\*\*: \_\_\_\_\_

Signed:  Date: 1 / 27 / 23  
 (Dr. Jason Morris, 2022-2023 College Senate President)

Signed:  Date: 01 / 27 / 23  
 (Dr. Eileen Daniel, Vice Provost, The College at Brockport)

**\*\*Implementation of resolution requires final approval from SUNY- State Education Department.**  
 YES  NO

*M.A.*

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

TO: Dr. Jason Morris, College Senate President  
 FROM: Dr. Heidi Macpherson, College President  
 RE: **→** I. Decision and Action Taken on Formal Resolution (circle choice)  
 a. Accepted  
 b. Deferred for discussion with the Faculty Senate on \_\_\_\_/\_\_\_\_/\_\_\_\_  
 c. Unacceptable for the reasons contained in the attached explanation.  
 d. Comments:

Signed:  Date: 2/28/23  
 (Dr. Heidi Macpherson, President, The College at Brockport)

**DISTRIBUTION:**

The College Senate will forward the resolution signed by the College Senate President to the Vice Provost for determination as to whether the implementation of the resolution requires final approval from SUNY-State Education Dept. The Vice Provost will then forward the resolution with that designation to the College President. Upon approval, the College President will forward copies of resolutions to his/her staff who will, in turn, forward copies to their staff and to the College Senate. The College Senate Office will post resolutions to the College Senate Web at <http://www.brockport.edu/collegesenate/resolutions>.





**SUNY  
BROCKPORT**

**COLLEGE SENATE RESOLUTION  
PROPOSAL COVER PAGE**

**DEADLINE FOR SUBMISSIONS: January 31**

**For full consideration during the academic year**

- Your proposal will be made into an ADA compliant PDF, will receive page numbering and a routing number, and will be forwarded onto the appropriate committee chair(s).

<b>Routing Number</b> <i>Routing # assigned by Senate Office</i>	<b>01_22-23UC</b>
<b>This Proposal Replaces Resolution</b>	
<b>Revision Date(s)</b>	
<b>Anticipated Effective Date:</b>	Fall 2023

**Title of Proposal in Title Style**

New Major in Climate Studies

**Brief Description of Proposal**

The Department of the Earth Sciences requests approval of a new major in Climate Studies.

**Effect on Transfer Students if Applicable**

Same as other majors offered by School of Arts and Sciences

**Proposer Information**

James Zollweg  
395-2352  
jzollweg@brockport.edu

**Senate Office Use Only**

	<b>Forwarded To</b>	<b>Dates Forwarded</b>
<input type="checkbox"/> Executive Committee		
<b>Standing Committee</b>	<b>Standing Committee</b>	8/26/2022
<input type="checkbox"/> Equity, Diversity and Inclusion Committee		
<input type="checkbox"/> Engagement & Enrollment Planning & Policies	<b>Executive Committee</b>	
<input type="checkbox"/> Faculty & Professional Staff Policies	<b>Senate</b>	
<input type="checkbox"/> General Education & Curriculum Policies	<b>Passed GED's go to Vice Provost</b>	
<input type="checkbox"/> Graduate Curriculum & Policies	<b>College President</b>	
<input type="checkbox"/> Student Policies	<b>OTHER</b>	
<input checked="" type="checkbox"/> Undergraduate Curriculum & Policies	<b>REJECTED -WITHDRAWN</b>	
<b>NOTES:</b>		





# SUNY BROCKPORT

## ESC 4XX Climatological Data, Modelling, and Predictability Department of Earth Sciences

### INSTRUCTOR INFORMATION

**Name:** TBD

### COURSE INFORMATION

**Meeting Time/Location:** TBD

### REQUIRED Materials

**Textbook:** This course will use IPCC reports, open textbooks, peer reviewed articles, and easily accessible climate models.

Optional textbook:

Goosse, H., Climate System Dynamics and Modelling, Cambridge University Press (1st ed), 273 p., ISBN-10: 1107445833 ISBN-13: 978-1107445833

### COURSE OVERVIEW

The class is organized in three parts:

Part I: Basics of the climate system with a strong focus on radiation budget

Part II: Basics of climate modeling

Part III: Analysis of climate model output and climate change impacts

The first part of the class focuses on basic principles of the climate system, as a basic understanding of radiation is necessary for understanding climate models. The second part discusses the basic notions in climate dynamics that are used in climate modeling of increasing complexity (from 1D to 3D and state-of-the-art Global Climate Models), and includes in-class and homework exercises using simple climate models. This unit focuses on the actual process of climate modeling. The third part of the class focuses on interpreting climate model outputs. We will cover the climate model predictions for different climate change impacts. Additional focus will be given on explaining and evaluating model output for use decision-making, and on estimating and communicating uncertainty of climate model projections.

### LEARNING OBJECTIVES

- To understand the basic concepts of climate dynamics including basic forces at play and their balances and attribution.
- Understand the basic principles of building and running climate models

- To establish a basic understanding towards various climate modelling approaches and their differentiations.
- Access climate model data of interest, compare with observational data, and perform basic climate data processing online and offline.
- Perform intermodel comparison studies and process climate model output for use in applications.
- Assess and effectively communicate uncertainty in climate model simulations and projections of future climate.
- Use the climate model output to make policy decisions

## **ASSESSMENT**

### **Class Participation (15%)**

Class participation is an essential part of the learning process and thus will constitute a substantial portion of the course grade. Attendance will be tracked. Arriving to class late, leaving early, or missing class without a substantial reason is unacceptable and will be penalized accordingly.

### **Class Activities (25%)**

Class activities will go hand in hand with topics discussed in class and will be an integral part of the course.

### **Student Presentations (20%)**

Students will be responsible for presenting and leading the discussion on one of the topics covered in the Unit 3.

### **Climate Modeling Project (40%)**

Students will choose a climate change impact problem of interest from a list of topics, such as regional precipitation, temperature variability and extremes, seawater intrusion into coastal aquifers, wind strength and/or direction, sea level variations etc. Students will run climate model experiments suitable for your project to answer your questions. The overarching goal is a term project that illustrates the use of climate modeling and output to answer a specific regional-scale problem, and identify and assess the uncertainty in the project findings and proposed solutions. Deliverables include a final poster, and a final paper.

## Tentative Schedule

Week	Topic	Class Activity
<b>UNIT 1 Basics of the climate system</b>		
Week 1	Properties of Radiation EM spectrum, reflection, refraction, scattering	Demonstration of extinction via scattering vs. absorption (overhead projector and petri dish)
Week 2	Properties of Thermal Emission Planck function, Wien's law, Stephan Boltzmann	Instructor code on emission
Week 3	Atmospheric Transmission Transmissivity, Scattering, Impact of Clouds	Basic heating rate model based on cloud cover
Week 4	Atmospheric Emission Absorption spectra, Greenhouse gasses, fluxes, and heating rates	Basic 1-D radiative/convective model w/ trace gas variability
Week 5	Surface Characteristics Albedo, Latent Heating, water vapor flux, ocean atmosphere interaction	Global weather/climate observations along snowcover gradients, near large bodies of water, etc.
<b>UNIT 2 Climate Models</b>		
Week 6	Introduction to climate models Why do we need climate models? General Concept, History, and Design	Simple spreadsheet climate model
Week 7	Climate Models Parameterizations Discussion of IPCC scenarios and storylines	Explore climate model results from different scenarios
Week 8	Climate Model Development Framework and process of model simulations and resolution	Explore simple climate outputs from online climate models
Week 9	How good are the Climate Models? Comparing predictions and projections from different climate models	Comparison of model predictions and observed data and paleoclimate data
Week 10	Introduction to EdGCM	Setting up the GCM-based climate model Model observations and output

UNIT 3 Climate Change Impacts from Climate Models		
Week 11	Freshwater Resources Terrestrial and Inland Water Systems (Ecosystems)	Student-led presentation & discussion
Week 12	Ocean Systems Food Security and Food Production	Student-led presentation & discussion
Week 13	Key Economic Sectors and Services Human Health	Student-led presentation & discussion
Week 14	Human Security; Livelihoods & Poverty Impacts review	Student-led presentation & discussion
Week 15	Integrated Assessment, Decisions under uncertainty Cost-benefit views of the climate problem	Final poster presentation



# SUNY Brockport College Senate

## Undergraduate Curriculum and Policies Committee

### Questions Regarding

### Proposal #56\_21-22UG

### Climate Studies Major

This document is a request for more information or clarification. This does not represent an evaluation of the merits of the proposal, nor should the nature of the questions be taken as criticism of the proposal. Once the committee has a sufficient understanding, we will proceed to evaluate the proposal. As a further remark, the lines of questioning are often informed by committee member's individual professional experiences surrounding various issues at the College, as well as the committee's collective experience with which questions are likely to arise sooner or later in the process. "Sooner" is better than "later" to give the proposer(s) ample time to respond.

Please provide your responses at your earliest convenience. If it is convenient, you and/or your designee(s) are welcome to join the committee as guest(s), in order to discuss the proposal.

We usually meet Monday mornings at 11:15 am on Microsoft Teams, and an invitation will be shared upon request.

### Inventory of proposal contents

*See the document "Guidelines for Undergraduate Curriculum Committee Program Submissions", located on the College Senate website.*

Proposal #56\_21-22 is a proposal for a new major program. As such, the following items are to be included in the proposal. Alongside each item are any questions or concerns related to the completeness of that item, and a column that you could use to respond. **Even if no response is needed, please type "NA" or "agree". This indicates that you agree with our understanding.** If you would respond elsewhere (email, phone, meeting, etc.), please make a note of this.

### Primary content

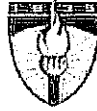
Content Description	Status	Response
A brief rationale for change	Included	
A side-by-side comparison of the current program along with the new program (credit hours must be included for each course and totaled in clear tabular form)	It's not a side-by-side, obviously, because it is a new course rather than a revision.  The list of courses proposed for the major shows credit-hours per course, but it is not in a tabular form that	An excel document adding up the credit hours is now included in the folder.

	includes credit-hour totals for the different parts of the major and major as a whole.	
Identification of Pre-Requisites as appropriate	The description of the new major does not include the prerequisites of the major courses. It is important to show everything a student must do to complete this major.	The Climate Studies Major document now includes the prerequisites for each course (there are none that aren't already included in the major).
Course Description Form located on the Senate website (for new course or changes to existing courses)	The proposal describes four new courses; course description forms must be included for all new courses. An additional form should be included for ESC 222 if the revision to the course goes beyond its title.	We have dropped the ENV course from the optional courses list because we do not know the status of that course's development. ESC 2XX Sustainability is now ESC 261, which is now an approved course. We have included course syllabi and registration forms for the two ESC 4XX courses that will need to be developed.
Sequence in which the courses would be offered to guarantee timely completion of the program	This is also missing from the proposal. A common strategy is to show a sample four year plan of how a student could complete this major, Gen Ed requirements, and other graduation requirements in eight semesters.	A sample 4 year plan is now included in the folder.
Staffing issues/Resource Implications	The proposal notes that no additional resources are needed. That part could use more explanation given that the proposal includes three new courses. How will this additional teaching be accomplished?	A brief justification is now included in the climate studies major document.
Other		

Academic administration commentary

Content Description	Status	Response
Letter of support from the Chair	Included	
Letter of support from Dean of the School	Included	
Letters of support from cooperating or affected departments or offices	All letters included except one from the Department of Accounting, Economics, and Finance. Is it certain that ECN 100 could absorb students from this major?	AEF letter now included in the support letters folder.

Dissenting letters if applicable		
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The College at  
**BROCKPORT**  
STATE UNIVERSITY OF NEW YORK

School of Business and Management

February 2, 2022

Professor Scott Rochette  
Chair – Department of Earth Sciences  
SUNY Brockport

Dear Scott::

As the Chair of the Accounting, Economics, Finance Department of the School of Business and Management, I am happy to provide my support for the proposed Major in Climate Studies.

The major will be using one of our courses ECN 100 – Contemporary Economic Problems as a required core course.

My support is based in part on an unanimous department vote on Feb 2, 2022. However, the department faculty asked that I explicitly convey to you the following two observations:

- a. That a combination of ECN 201 (Principles of Microeconomics) and ECN 202 (Principles of Macroeconomics) be considered a substitute for ECN 100, especially for those students with an interest in pursuing the study of economics in more depth.
- b. That ECN 443 (International Economics) which has ECN 201, 202 as prerequisites be considered for inclusion as an elective that would provide valuable background in this area, usefully complementing the coursework from other departments (especially those in HST, PLS) that you have proposed.

My best wishes for the new proposal and major. Please do not hesitate to contact me for any further assistance.

Sincerely,

James J. Cordeiro, PhD  
Professor and Chair: AEF Department



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Office of the Dean • 350 New Campus Drive • Brockport, New York 14420-2965  
(585) 395-2623 • Fax: (585) 395-2542 • [www.brockport.edu](http://www.brockport.edu)





The College at  
**BROCKPORT**  
STATE UNIVERSITY OF NEW YORK

Department of the Earth Sciences  
geology ☉ meteorology ☉ earth science ☉ water resources

TO: College Senate

FROM: Dr. Scott M. Rochette, Professor and Chair  
Earth Sciences

DATE: 19 January 2022

SUBJECT: Support Letter for Climate Studies College Senate Proposal

I am writing to offer my support of the College Senate proposal submitted by the Earth Sciences department, which seeks to establish a major in Climate Studies within the department. This interdisciplinary major will be unique in the SUNY system and beyond. The role and effects of climate and climate change on the earth and its populations are crucial to our survival as a species, and providing students with the necessary knowledge and skill set to address these issues will be paramount for the future of all living things. The Earth Sciences department has the faculty and resources to undertake this mission, and its faculty are confident that this major will attract new students and be of interest to existing students as a second major. As such, I wholeheartedly endorse this endeavor.

Thank you for the opportunity to review the proposal.



The College at  
**BROCKPORT**  
STATE UNIVERSITY OF NEW YORK

Steve James Jurek  
Department of Political Science and International Studies  
211 Hartwell Hall

To: Faculty Senate  
From: Steve Jurek, Chair PLS/INS Dept  
Re: Climate Studies major  
Date: October 18, 2021

---

To Whom It May Concern:

The Political Science and International Studies department fully supports the creation of a Climate Studies major. We agree with the Earth Science department that this timely new major will be popular with prospective students and are delighted to be included in this cutting-edge program. We are pleased that several Political Science courses are included in this multi-disciplinary curriculum as climate change is not only an incredibly important study in the physical sciences, but what the planet can do and is willing to do is intricately connected to international and domestic politics. Our department can consistently offer our designated course rotations to satisfy this new major with no new anticipated costs to the School of Arts and Sciences.

Respectfully,  
Steve Jurek, PhD.



# SUNY BROCKPORT

**School of Arts and Sciences**  
350 New Campus Drive  
Brockport, New York 14420-2983  
P: (585) 395-5806 | F: (585) 395-5808  
[brockport.edu](http://brockport.edu)

27 January 2022

Prof. James Spiller  
President  
College Senate

Dear Prof. Spiller,

The Department of Earth Sciences has drafted a proposal to offer a new academic major in Climate Studies. According to the United Nations, "Climate Change is the defining issue of our time and we are at a defining moment." It is also a complex issue. Only an interdisciplinary approach that incorporates concepts, methods, and/or theories from science, economics, political science, and sociology stands any chance to adequately understand this complex issue. To mitigate climate change, individual and collective efforts are necessary. Hand in hand with mitigation efforts, governments, corporations, and organizations are developing strategies to adapt to climate change. These factors informed the proposed curriculum of the Climate Studies Major.

What is truly remarkable about the proposed major is that the Department of the Earth Sciences has volunteered to create three new courses and modify as many other courses, all with the assistance of existing faculty. That said, cooperation of the Departments of Accounting, Economics & Finance, Environmental Science & Ecology, Political Science, and Sociology was critical for developing the curriculum and continued cooperation will be essential to offer the curriculum.

I would be remiss not to mention that the Academic Strategic Planning Steering Committee recommended the creation of a Minor in Climate Change. Given the complexity and enormity of issues related to Climate Change, a Minor would not do justice.

As governments, corporations, and organizations are forced to confront the consequences of climate change, employment opportunities, including jobs that currently do not exist, are sure to increase. The curriculum developed by the five participating departments is distinct and distinctly different from many that I have reviewed. For these reasons, I wholeheartedly support the proposed Climate Studies Major.

I thank Dr. Scott Rochette, the department chair, and his colleagues for the time and effort they put in to collaborate with four other departments and develop the proposal.

Sincerely,

Jose Maliekal  
Dean



**SUNY**  
**BROCKPORT**

Department of Sociology

January 19, 2022

To College Senate:

I write to endorse the proposal by to create a major in Climate Studies. As explained in the proposal, the major would requires that students complete two electives from an approved selection of courses. Elective options include the following sociology courses:

SOC 307 Environmental Sociology, and  
SOC 311 Sociology of Disaster

The Department of Sociology strongly endorses this proposal as it will create a new major in an area of interest to many of today's young target students, thus drawing potential new students to the College. Moreover, this is a critical area of study with world-import. Finally, we can easily accept the anticipated number of additional students in each the above two courses.

Sincerely,

Denise A. Copelton,  
Professor & Department Chair



The College at Brockport  
Course Registration Form

1. Discipline: ESC Course No. (To be assigned by Registrar)  
Official Title:  
Abbreviated course title (limit to 18 spaces) Climate Mitigation
- New Course  
 Current Content Revised  Topics Course (if checked, complete item 2)  
 Title Change (Previous Title)  
 Number Change (Previous No.)  
 Inactivation of existing course (course will not be offered in the near future)  
 Topics Course (if checked, complete item 2)  
 Other (describe)
2. TOPICS COURSE ONLY: Discipline Number  
A. Generic Course Title:  
B. Topics Course Title:  
C. Topics Course offered: Semester Year
3. Semester hours of credit assigned to course(invariable) 3  
Variable Credit Range to semester hours  
Is this course repeatable for credit (Yes/No) No
4. Grading (Check any that apply):  
a.  Letter Grade  Pass/Fail (S/U) Only  PR grade (In Progress)  
b.  Course requires minimum grade of for General Education/major/minor/certification.
5. Is this a Liberal Arts course? (Yes/No) No
6. General Education Information: (Complete only for General Education courses) \*See last item.  
a. General Education Knowledge Area (choose one if applicable): None  
b. Additional student learning outcomes: (check all that are *currently approved*)  
 Contemporary Issues (I)  Scholarship on Women (W)  
 Diversity (D)  Other World Civilizations (Non-Western) (O)
7. Frequency (Check only one)  
 Every Term  Every Other Year  
 Every Fall  Irregularly  
 Every Spring  By Special Arrangement  
 Every Summer
8. Cross Listed Course Discipline Number  
Discipline Number

Submitted by: \_\_\_\_\_ Date: \_\_\_\_\_

Chairperson's Approval: \_\_\_\_\_ Date: \_\_\_\_\_

Dean's Approval: \_\_\_\_\_ Date: \_\_\_\_\_

9. Prerequisites:            Discipline ESC            Number 313  
    Discipline                    Number  
    Discipline                    Number  
    Discipline                    Number
10. Corequisite:            Discipline                    Number  
    Discipline                    Number
11. Swing Course Number            Only for courses offered in the same discipline at another level under another number, give number (i.e. 428/528)

Note: If this is a 'Swing Course' list additional requirements required for graduate level.

12. Relationship to Degrees/Programs: Required  Elective
13. For all courses, please attach the following information: Please see attached
- a. Objectives
  - b. Outline of Course
  - c. Methods of Assessing Student Performance
  - d. Materials required (Films, Readings, Etc..)
  - e. Other Needs
14. Is this course required in the major/minor: Describe how this course applies to degree requirements:  
 Major requirement
15. If this course requires any special scheduling arrangements with regard to time or room/space, please explain in the space provided  
 No
16. Write a brief course description for the College Catalogs. Reflect content as accurately as possible using 65 words or less about 500 characters. Use action verbs and omit "This course covers... and similar phrases.  
 The course will focus how the knowledge of climate change can be translated into policy decisions. The course aims to bring together a whole range of complex issues surrounding the potential impact of climate change in different parts of the world, the economics of climate change in developing and developed nations, and use of technologies to adapt to and mitigate climate hazards.

For General Education courses only, attach also:

Supplemental General Education Course Registration Form

Student Learning Outcomes Checklist (for specific codes requested).

The College at Brockport  
Course Registration Form

1. Discipline: ESC Course No. **(To be assigned by Registrar)**  
 Official Title:  
 Abbreviated course title (limit to 18 spaces) Climate Modeling  
 New Course  
 Current Content Revised  Topics Course (if checked, complete item 2)  
 Title Change (Previous Title)  
 Number Change (Previous No.)  
 Inactivation of existing course (course will not be offered in the near future)  
 Topics Course (if checked, complete item 2)  
 Other (describe)
  
2. TOPICS COURSE ONLY: Discipline \_\_\_\_\_ Number \_\_\_\_\_  
 A. Generic Course Title:  
 B. Topics Course Title:  
 C. Topics Course offered: Semester \_\_\_\_\_ Year \_\_\_\_\_
  
3. Semester hours of credit assigned to course(invariable) 3  
 Variable Credit Range \_\_\_\_\_ to \_\_\_\_\_ semester hours  
 Is this course repeatable for credit (Yes/No) No
  
4. Grading (Check any that apply):  
 a.  Letter Grade  Pass/Fail (S/U) Only  PR grade (In Progress)  
 b.  Course requires minimum grade of \_\_\_\_\_ for General Education/major/minor/certification.
  
5. Is this a Liberal Arts course? (Yes/No) No
  
6. General Education Information: (Complete only for General Education courses) \*See last item.  
 a. General Education Knowledge Area (choose one if applicable): None  
 b. Additional student learning outcomes: (check all that are *currently approved*)  
 Contemporary Issues (I)  Scholarship on Women (W)  
 Diversity (D)  Other World Civilizations (Non-Western) (O)
  
7. Frequency (Check only one)  
 Every Term  Every Other Year  
 Every Fall  Irregularly  
 Every Spring  By Special Arrangement  
 Every Summer
  
8. Cross Listed Course Discipline \_\_\_\_\_ Number \_\_\_\_\_  
 Discipline \_\_\_\_\_ Number \_\_\_\_\_

Submitted by: \_\_\_\_\_ Date: \_\_\_\_\_

Chairperson's Approval: \_\_\_\_\_ Date: \_\_\_\_\_

Dean's Approval: \_\_\_\_\_ Date: \_\_\_\_\_

9. Prerequisites:            Discipline ESC            Number 313  
    Discipline                            Number  
    Discipline                            Number  
    Discipline                            Number
10. Corequisite:            Discipline                            Number  
    Discipline                            Number
11. Swing Course Number            Only for courses offered in the same discipline at another level under another number, give number (i.e. 428/528)

Note:        If this is a 'Swing Course' list additional requirements required for graduate level.

12. Relationship to Degrees/Programs:    Required Y Elective
13. For all courses, please attach the following information: Please see attached
- a. Objectives
  - b. Outline of Course
  - c. Methods of Assessing Student Performance
  - d. Materials required (Films, Readings, Etc..)
  - e. Other Needs
14. Is this course required in the major/minor: Describe how this course applies to degree requirements:  
 Major requirement
15. If this course requires any special scheduling arrangements with regard to time or room/space, please explain in the space provided  
 No
16. Write a brief course description for the College Catalogs. Reflect content as accurately as possible using 65 words or less about 500 characters. Use action verbs and omit "This course covers... and similar phrases.  
 This course introduces basics of climate modeling. The course is divided into three units focusing on radiation, the methods of climate modeling and evaluating future climate change impact from climate model outputs. The course will provide hands on experience on working with simple climate models and discuss their important on policymaking.

For General Education courses only, attach also:

Supplemental General Education Course Registration Form

Student Learning Outcomes Checklist (for specific codes requested).

<u>Required Courses</u>	<u>Credit Hours</u>
ECN 100	3
PLS 111	3
ENV 201	3
ESC 211	4
ESC 222	4
ESC 261	3
ESC 313	3
ESC 314	1
PLS 328	3
ESC 350	3
ESC 391	1
ESC 4XX	3
ESC 4XX	3
ESC 492	1
	<b>38 Total Required</b>
<u>Designated Electives</u>	<u>6</u>
<u>Non Included Prerequisites</u>	<u>0</u>

**44 Total Credit Hours**

## **FIRST YEAR**

### **Fall Semester**

<b>Course</b>	<b>Credits</b>
PLS 111 Introduction to International Relations (O,S)	3
ESC 211 Introduction to Meteorology (L)	4
ENG 112 English Composition	3
Gen Ed: Humanities (H)	3
GEP 100 Academic Planning Seminar	1
<b>Total</b>	<b>14</b>

### **Spring Semester**

<b>Course</b>	<b>Credits</b>
ECN 100 Contemporary Economic Issues (S)	3
MTH 122 Pre-Calculus (M)	4
Gen Ed: Humanities (H)	3
ESC 222 Introduction to Water Resources (L)	4
ESC 371 GIS	1
<b>Total</b>	<b>15</b>

## **SECOND YEAR**

### **Fall Semester**

<b>Course</b>	<b>Credits</b>
ESC 261 Introduction to Sustainability (N)	3
ESC 391 Writing in the Earth Sciences	1
ENV 201 Introduction to Environmental Science (N,Y)	3
Gen Ed: Fine Arts (F)	3
Gen Ed: Social Sciences (S)	3
Gen Ed: Foreign Language	3
<b>Total</b>	<b>16</b>

### **Spring Semester**

<b>Course</b>	<b>Credits</b>
ESC 313 Environmental Climatology	3
ESC 314 Environmental Climatology Lab	1
electives	3
Gen Ed: Fine Arts (P)	3
PLS 328 Politics of Energy	3
Designated elective	3
<b>Total</b>	<b>16</b>

## **THIRD YEAR**

### **Fall Semester**

<b>Course</b>	<b>Credits</b>
Designated elective	3
Contemporary Issues Course	3
Gen Ed: Diversity (D)	3
300-level elective	3
300-level science elective by advisement	3
<b>Total</b>	<b>15</b>

### **Spring Semester**

<b>Course</b>	<b>Credits</b>
ESC 350 Computational Methods in the Field Sciences <b>OR</b> MTH 243 Elementary Statistics	3
300-level elective	3
300-level science elective by advisement	3
electives	3
ESC 4XX Climatological Data, Modelling, and Predictability	3
<b>Total</b>	<b>15</b>



## **FOURTH YEAR**

### **Fall Semester**

<b>Course</b>	<b>Credits</b>
300-level science elective by advisement	3
300-level elective electives	6 6
<b>Total</b>	<b>15</b>

### **Spring Semester**

<b>Course</b>	<b>Credits</b>
ESC 492 Senior Climate Capstone	1
300-level science elective by advisement	3
300-level elective	3
ESC 4XX Climate Change and Mitigation electives	3 4
<b>Total</b>	<b>14</b>

## College Senate Curriculum Proposal Form

Please check:

**Undergraduate**    Graduate    Combined Degree Program    Accelerated Program

**Department/Major:**

Earth Sciences / Climate Studies

**Title of Proposal:**

New Major in Climate Studies

**Rationale:**

Justification of a New Climate Studies Major

We anticipate a growing demand for a climate studies major with a dual focus on climate science and policy. A survey of the job listings on the major job listing websites such as Indeed or LinkedIn reveals a need for people who have functional and technical knowledge of climate related topics for various sectors. Some examples of these job listings include: climate policy associates at government offices from county to state levels, climate action policy development at industries, climate advisors at water and electricity companies and climate equity or environmental justice specialists. The starting salaries for these jobs range in \$80 to \$90k. These jobs require background in public policy or environmental science and related fields. They do not list climate studies as only a handful of universities offer a major in a similar field (Climate Studies or Climate Change Science). The Bureau of Labor Statistics projects that the number of jobs for environmental scientists and specialists will increase 8% between 2019 and 2029. Our students will be able to tap into this growing job market by serving the need of these organizations that need people with both policy and climate background. Following is breakdown of demand of this major that we anticipate:

1. Improved recruitment: Cambridge International's first-ever Global Perspectives survey (<https://www.cambridgeinternational.org/programmes-and-qualifications/cambridge-global-perspectives/survey-results/>) revealed that 40% of the 13-19 year olds surveys believe that climate change is the single biggest issue facing the world today. A survey by the National Society of the High School Scholars (<https://www.nshss.org/media/33212/2020careersurvey.pdf>) in 2020 revealed that 34% are interested in pursuing a career related to climate change and 76% of those surveyed want to be involved in politics. Our Climate Studies major will be an attractive option for this demography.

2. Double Majors: The proposed course list is highly complementary to majors in Earth Science, Political Science as well as other majors. This would be beneficial to the college as these students can potentially bring in additional revenues.

**A Side-by-Side Comparison of the Current and New Program** (credit hours must be included for each course and totaled in clear tabular form). Identification of Pre-Requisites as N/A

Required Core Courses

- ECN 100 Contemporary Economic Issues 3; Prerequisites: None
- PLS 111 Introduction to International Relations 3; Prerequisites: None
- ENV 201 Introduction to Environmental Science 3; Prerequisites: None
- ESC 211 Introduction to Meteorology 4; Prerequisites: None
- ESC 222 Introduction to Water Resources (\*To be renamed Climate and Water Resources) 4; Prerequisites: None
- ESC 261 Introduction to Sustainability 3; Prerequisites: None
- ESC 313 Environmental Climatology (\*To be renamed Climate Systems, Processes, and Change) 3; Prerequisites: ESC 211 (included)
- ESC 314 Environmental Climatology Lab (\*To be renamed Climate Systems Lab) 1; Prerequisites: ESC 211 (included)
- PLS 328 Politics of Energy 3; Prerequisites: None
- ESC 350 Computational Methods in the Field Sciences *OR* MTH 243 Elementary Statistics 3; Prerequisites: Math 122 and ESC 211 (included) *OR* Prerequisites: Math 110 or higher
- ESC 391 Writing in the Earth Sciences 1; Prerequisites: ESC 211 (included)
- ESC 4XX Climatological Data, Modelling, and Predictability 3, Prerequisites: ESC 313 (included)
- ESC 4XX Climate Change and Mitigation 3, Prerequisites: ESC 313 (included)
- ESC 492 Senior Climate Capstone (project or internship) 1; Prerequisites: None

Designated Elective Courses- Students will take **Two** of the following: 6

- PLS 312 Introduction to Public Administration Prerequisites: None
- PLS 410 International Political Economy Prerequisites: PLS 111 (included)
- PLS 338 Global Issues Prerequisites: None
- PLS 333 American Foreign Policy Prerequisites: PLS 111 (included)

ESC 318 Watershed Science (\*To be renamed Sustainable Land and Water Management) Prerequisites: None

ESC 332 Air and Water Pollution Prerequisites: None

SOC 307 Environmental Sociology Prerequisites: SOC 100

SOC 311 Sociology of Disaster Prerequisites: SOC 100

\*Note: Any students coming in with the equivalent of MTH 110 will require no prerequisites to courses to in the major curriculum that are outside of the proposed curriculum. The course requirements are entirely self contained within the major.

**Admission Requirements & Exit Requirements** if applicable – if not applicable write NA:

N/A

**Program Requirements** if applicable – if not applicable write NA:

N/A

**Course Revision(s):** Please describe changes for each course as well as methods for assessment if applicable

**Resource Implications and Estimated Costs:** (Personnel, Supplies, Labs, Technology...):

No additional resources needed:

Despite the introduction of 3 new courses within the proposed Climate Studies major, we do not anticipate that we will require any new faculty resources. We have already fit the introduction to sustainability course into our teaching rotation as it will be offered right away as part of the new interdepartmental major in sustainability. The climate change and mitigation course will replace the current course we offer in climate change (ESC 362), which we may still offer as an issues course, but not as frequently. The most recent ASP report has recommended our water resources program to be cut. While most of the current water resources courses will still need to be offered as they make up the part of the curriculum of the Earth Sciences, Meteorology, Geology, and proposed Climate Studies majors, there are a few electives that can be offered less frequently or cut entirely to make room from the third new course in the Climate Studies major.

**Other Supporting Information:** (if applicable)

**Attach Course Description Form for New Courses**

**Attach Letters of Support from Chair; Dean; Cooperating or Affected Departments or Offices  
(if applicable); Dissenting letters if applicable**

