Fiscal Unit/Academic Org	Geography - D0733
Administering College/Academic Group	Social And Behavioral Sciences
Co-adminstering College/Academic Group	
Semester Conversion Designation	Converted with minimal changes to program goals and/or curricular requirements (e.g., sub- plan/specialization name changes, changes in electives and/or prerequisites, minimal changes in overall structure of program, minimal or no changes in program goals or content)
Current Program/Plan Name	Geography
Proposed Program/Plan Name	Geography - GEOG-BS
Program/Plan Code Abbreviation	GEOG-BS
Current Degree Title	Bachelor of Science

# **Credit Hour Explanation**

Program credit hour requ	irements	A) Number of credit hours in current program (Quarter credit hours)	B) Calculated result for 2/3rds of current (Semester credit hours)	C) Number of credit hours required for proposed program (Semester credit hours)	D) Change in credit hours
Total minimum credit hours completion of progra		53	35.3	32	3.3
Required credit hours offered by the unit	Minimum	38	25.3	24	1.3
	Maximum	53	35.3	32	3.3
Required credit hours offered outside of the unit	Minimum	0	0.0	0	0.0
	Maximum	15	10.0	11	1.0
Required prerequisite credit hours not included above	Minimum	20	13.3	18	4.7
	Maximum	30	20.0	23	3.0

#### Explain any change in credit hours if the difference is more than 4 semester credit hours between the values listed in columns B and C for any row in the above table

NOTE: Credit hours "offered by the unit" include courses in Geography and in Atmospheric Sciences. RATIONALE: Minimum prerequisite credit hour requirements are slightly higher due to repackaging of math sequence.

# **Program Learning Goals**

Note: these are required for all undergraduate degree programs and majors now, and will be required for all graduate and professional degree programs in 2012. Nonetheless, all programs are encouraged to complete these now.

**Program Learning Goals** 

- Students acquire fundamental concepts of geography
- Students achieve familiarity with methods used in geography
- Students can communicate geographical concepts and methods orally, visually, and/or in writing
- Students apply geographical concepts and methods in experiential settings, including internships, field work, study

abroad, research, and through international experience.

#### Assessment

Assessment plan includes student learning goals, how those goals are evaluated, and how the information collected is used to improve student learning. An assessment plan is required for undergraduate majors and degrees. Graduate and professional degree programs are encouraged to complete this now, but will not be required to do so until 2012.

Is this a degree program (undergraduate, graduate, or professional) or major proposal? Yes

Does the degree program or major have an assessment plan on file with the university Office of Academic Affairs? Yes

#### Summarize how the program's current quarter-based assessment practices will be modified, if necessary, to fit the semester calendar.

For our assessment, we use a variety of direct and indirect methods, none of which depend upon whether the program is run under quarters or semesters. As a result, we do not anticipate any changes to our assessment practices under the semester system.

### **Program Specializations/Sub-Plans**

If you do not specify a program specialization/sub-plan it will be assumed you are submitting this program for all program specializations/sub-plans.

Program Specialization/Sub-Plan Name	Climate and Physical Geography (Existing)
Program Specialization/Sub-Plan Goals	

## **Pre-Major**

Does this Program have a Pre-Major? No

#### Attachments

Attachment 3\_Undergrad CPG\_110210.docx: Attachment 3

(Curricular Map(s). Owner: Pernik,Juliana Christine)

Division Cover Letter for Geography.doc: Attachment 1

(Letter from the College to OAA. Owner: Mumy,Gene Elwood)

- Sciences CCI Chair--Cover Letter for Geography Majors.doc: CCI Subcommittee Chair letter (Other Supporting Documentation. Owner: Vankeerbergen,Bernadette Chantal)
- Attachment 2\_Undergrad CPG\_121010.docx: Attachment 2 (Program Proposal. Owner: Pernik, Juliana Christine)

#### Comments

### **Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Pernik, Juliana Christine	09/30/2010 03:17 PM	Submitted for Approval
Revision Requested	Mansfield, Becky Kate	09/30/2010 03:25 PM	Unit Approval
Submitted	Pernik,Juliana Christine	09/30/2010 04:07 PM	Submitted for Approval
Approved	Mansfield,Becky Kate	09/30/2010 04:11 PM	Unit Approval
Revision Requested	Mumy,Gene Elwood	10/14/2010 12:04 PM	College Approval
Submitted	Pernik,Juliana Christine	11/02/2010 11:43 AM	Submitted for Approval
Approved	Mansfield,Becky Kate	11/02/2010 12:47 PM	Unit Approval
Approved	Vanarsdale,Sonya Renee	11/02/2010 02:37 PM	College Approval
Revision Requested	Vankeerbergen,Bernadet te Chantal	11/12/2010 12:58 PM	ASCCAO Approval
Submitted	Pernik,Juliana Christine	11/15/2010 02:39 PM	Submitted for Approval
Approved	Mansfield,Becky Kate	11/15/2010 04:36 PM	Unit Approval
Approved	Mumy,Gene Elwood	11/15/2010 05:18 PM	College Approval
Revision Requested	Vankeerbergen,Bernadet te Chantal	12/10/2010 01:58 PM	ASCCAO Approval
Submitted	Pernik,Juliana Christine	12/13/2010 03:50 PM	Submitted for Approval
Approved	Mansfield,Becky Kate	12/13/2010 03:59 PM	Unit Approval
Approved	Mumy,Gene Elwood	12/15/2010 08:18 AM	College Approval
Pending Approval	Nolen,Dawn Jenkins,Mary Ellen Bigler Meyers,Catherine Anne Vankeerbergen,Bernadet te Chantal Hanlin,Deborah Kay	12/15/2010 08:18 AM	ASCCAO Approval



186 University Hall 230 North Oval Mall Columbus, OH 43210

Phone (614) 292-1667 Fax (614) 292-8666 Web <u>artsandsciences.osu.edu</u>

November 10,



Professor Larry Krissek Chair, Arts and Sciences CCI

Dear Professor Krissek:

At the <u>undergraduate level</u> the Department of Geography has six major programs:

- 1. Environment and Society (BA)
- 2. Climatology and Physical Geography Specialization (BS)
- 3. Spatial Analysis (BS)
- 4. Urban, Regional and Global Studies (BA)
- 5. Geographic Information Science (BS) Tagged Major, pending
- 6. Atmospheric Science (BS) Tagged Major, pending

Atmospheric Science and Geographic Information Science are new degrees approved early this year at the University level but have not yet been given final approval by the Board of Regents. We are fairly confident that they will receive BOR approval and Geography has presented semester transition plans with only minor changes except for a reduction of sequences in the GIS major to eliminate possible transition programs in sequenced courses.

At the time the new degrees were being developed Geography also revised the entire Geography major and its specializations. These revisions were also approved by CAA early this year so the semester conversion plans contain minimal changes.

These conversion plans were reviewed by me and the Social Sciences Disciplinary Advisory Panel (SS DAP). The SS DAP and I support Geography's conversion plans and submit them to you for CCI's consideration.

Sincerely,

Kone E. Muny

Gene E. Mumy Associate Dean of Arts and Sciences/Social and Behavioral Sciences



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November 23, 2010

Professor Larry Krissek Chair, Arts and Sciences CCI Re: Geography Majors

Dear Professor Krissek:

At the CCI's Sciences Subcommittee meeting of November 10, 2010 the semester conversion plans for the following six majors provided by the Department of Geography were reviewed:

1. Environment and Society (BA); 2. Climatology and Physical Geography Specialization (BS); 3. Spatial Analysis (BS); 4. Urban, Regional and Global Studies (BA); 5. Geographic Information Science (BS) Tagged Major, pending; 6. Atmospheric Science (BS) Tagged Major, pending.

The first four majors were in place when Geography decided to propose new Atmospheric Sciences and Geographic Information Science majors. To align the existing majors with the two new ones and to prevent overlap, the Department also substantially revised its four existing majors. The new majors and the revisions were all approved by CAA in January 2010. As a result there was no need to rethink the structure of any major for calendar conversion and all conversions are with minimal changes.

Actually about the only minimal change was to eliminate a sequence in the core courses of the GIS major to avoid transition problems and the need for bridge courses. Other than that all of the conversions are very direct. As a result the committee voted on November 10 to approve the Atmospheric Sciences (unanimously approved) and Geography Environment and Society BA. After receiving clarification on some minor points the committee approved the other four majors in an electronic ballot.

It is my pleasure to now submit these majors to you for the next step in the approval process.

Sincerely,

Kone E. Many

Gene E. Mumy Acting Subcommittee Chair for Nov. 10 Associate Dean of Arts and Sciences/Social and Behavioral Sciences

To: OAA Date: 6/14/2010

### Cover Letter for Proposals from the Department of Geography

This is the transmittal cover letter to the Office of Academic Affairs that reflects the efforts by the Department of Geography under Quarter to Semester Conversion.

The department used a series of committee and special purpose task forces to review programs and courses. Having recently proposed substantial revisions to our majors, we were in relatively good position to begin the Q to S process.

There has been a tremendous effort to accomplish these planned changes, with commendable input from Professor Becky Mansfield (Undergraduate), Jay Hobgood (Atmospheric Science), and Darla Munroe (Graduate). The graduate level documents are still being finalized.

The department recommends approval of these changes, which by and large are converted with minimal changes to program goals and/or curricular requirements at the undergraduate level. A recently approved set of revisions to the Majors has been incorporated into our planned semester version. [There are minimal name changes, changes in electives and/or prerequisites, minimal changes in overall structure of program, minimal or no changes in program goals or content.]

The graduate courses are minimally changed, but there is expected to be a complete re-write of our graduate manual to organize these classes in a way that conveys greater advisor flexibility. The department will seek appropriate approval for any substantive track or programs changes built around our existing graduate courses.

#### The following are the programs in the department:

- a. Undergraduate bachelors degree programs and/or majors
- 1. Environment and Society (BA)
- 2. Climatology and Physical Geography Specialization (BS)
- 3. Spatial Analysis (BS)
- 4. Urban, Regional and Global Studies (BA)
- 5. Geographic Information Science (BS) Tagged Major, pending
- 6. Atmospheric Science (BS) Tagged Major, pending
- b. Undergraduate minors

A minor in geography is available to any Arts and Sciences student who is not already majoring in geography.

c. Undergraduate associate degree programs n/a

d. Graduate degree programs

M.A. in Geography
Ph.D. in Geography
M.S. in Atmospheric Science
Ph.D. in Atmospheric Science

e. Graduate minors n/a

f. Graduate certificate programs n/a

g. Graduate interdisciplinary specializations

Graduate Interdisciplinary Specialization in Geo-Spatial Data Analysis.

Since the interdisciplinary specialization requires elements from many other degree programs, we plan to finalize these syllabi and arrangements after the initial round of graduate degree courses has been screened.

h. Professional degree programs n/a

i. Combined programs (e.g., BS/MS, Ph.D./ MD) n/a

For the record, no programs are being withdrawn. The details in the balance of the template are incorporated by reference, and are being revised to ensure technical compliance with the templates.

Thank you for attention to these proposals

Morton O'Kelly Professor & Chair Department of Geography

#### **Program Rationale Statement**

The Geography major (all four specializations) was last revised in 2010 (approved in January), with implementation in spring term. Proposed in autumn 2008, this extensive revision was the result of extensive consultation with faculty and students, and responds to suggestions from an external review in 2006.

Because we are only now implementing this revised program, very few changes are being made to the curriculum for semesters. The current program proposals were developed by the Undergraduate Studies Committee with consultation with faculty. A consensus was achieved through discussion via email and at faculty meetings.

For the climate studies path of this specialization, there are no changes for semesters. For the physical geography path, we moved one course from the required core to the electives, added a choice of methods courses to the required core, and slightly revised the list of electives.

#### List of semester courses in the program

Students choose <u>one of two</u> paths: Climatic Studies or Physical Geography. Courses for both are in the table below.

Segment of Major	Semester #	Semester course name	Units
Required Prerequisites or Supplements to	o the Major		
1. For Climatic Studies path (23 hours)			
	MATH 1252	Calculus 1	5
	MATH 1252	Calculus 2	5
	PHYS 1250	Intro to Calculus-based Physics 1	5
	PHYS 1251	Intro to Calculus-based Physics 2	5
	STAT 2450	Introduction to Statistical Analysis	3
2. For the Physical Geography path (18 hours)			
	MATH 1251	Calculus 1	5
	MATH 1252	Calculus 2	5
	PHYS 1250	Intro to Calculus-based Physics 1	5
	STAT 2450	Introduction to Statistical Analysis	3
Required courses			
1. For Climatic Studies path (17 hours)			
	AS 2940 OR		
	GEOG 5900	Basic Meteorology <u>OR</u> Climatology	3
	5921	Boundary Layer Climatology	3
	5922	Microclimatological Measurements	3
	AS/GEOG		
	5940	Synoptic Meteorology Laboratory	2
	5941	Synoptic Analysis and Forecasting	3
	5942	Severe Storm Forecasting	3
2. For Physical Geography path (19-20 ho	urs)		
		Introduction to Physical Geography (4 credits) Or	
	2960 OR	Physical Geography and Environmental Issues (3	
	2800	credits)	3 or 4
	3980	Biogeography: An Introduction to Life on Earth	3

1	3900 OR	Global Climate Change: Causes and Consequences	1
	3901H	OR Global Climate and Envt'l Change	3
	AS 2940 OR		5
	GEOG 5900	Basic Meteorology OR Climatology	3
	5100 OR	Quantitative Geographical Methods OR Elements	
	5200 OR	of Cartography OR Fundamentals of Geographic	
	5220	Information Systems	3
Successor to	ES	Geomorphology	4
Electives			
1. For Climatic Studies path. Choose five	-		
	2960 OR	Introduction to Physical Geography <u>OR</u> Physical	
	2800	Geography and Environmental Issues	3
	3900 OR	Global Climate Change: Causes and Consequences	
	3901H	OR Global Climate and Envt'l Change	3
	3980	Biogeography: An Introduction to Life on Earth	3
	AS 5901	Climate System Modeling: Basics and Applications	3
	AS 5950	Atmospheric Thermodynamics	3
	AS 5951	Dynamic Meteorology I	3
	AS 5952	Dynamic Meteorology II	3
		Integrated Earth Systems: Confronting Global	
	3882	Change	3
	5200	Elements of Cartography	3
	5220	Fundamentals of Geographic Information Systems	3
		Undergraduate Research and Professionalization	
	4101	Seminar	3
Successor to	ES	Principles of Oceanography	3
		The Cryosphere Earth Sci (3 credits) <u>or</u> Glaciers	-
Successor to	ES	and Landscapes Earth Sci (4 credits)	3 or 4
	five of the follow	ving courses (at least three must be from Geography	or
Atmospheric Sciences) (15-16 hours):			
Note that some courses may have prereq	uisites beyond	those required for the major	
	5200	Elements of Cartography	3
		Computer Cartography and Geographic	
	5201	Visualization	3
	5220	Fundamentals of Geographic Information Systems	3
	5221 OR	Spatial Simulation and Modeling in GIS; GIS	-
	5222 OR	Applications in Social Science and Business;	
	5223	Design and Implementation of GIS	3
	5270	Geographic Applications in Remote Sensing	3
		Undergraduate Research and Professionalization	
	4101	Seminar	3
		One Human Geography course 4000-level or	
		higher	3
	5921	Boundary Layer Climatology	3
	5922	Microclimatological Measurements	3
	AS/GEOG		5
	5940	Synoptic Meteorology Laboratory	3
	5540	Synoptic meteorology Laboratory	
	5941	Synoptic Analysis and Forecasting	3

	5942	Severe Storm Forecasting	3
	AS 5901	Climate System Modeling: Basics and Applications	3
	AS 5950	Atmospheric Thermodynamics	3
	AS 5951	Dynamic Meteorology I	3
	AS 5952	Dynamic Meteorology II	3
		Integrated Earth Systems: Confronting Global	
	3882	Change	3
Successor to	ES	Principles of Oceanography	3
Successor to	ES	Water in the Basin Hydrologic Cycle	3
Successor to	ES	The Cryosphere	3
Successor to	ES	Glaciers and Landscapes	4

# Curriculum Advising Sheets – Semester – Climatic Studies

Segment of Major Program and		Credit	
Course Number	Course name	hours	Grade
Required Prerequisites or			
Supplements to the Major			
Math 1251	Calculus 1	5	
Math 1252	Calculus 2	5	
Physics 1250	Introduction to Calculus-Based Physics 1	5	
Physics 1251	Introduction to Calculus-based Physics 2	5	
Statistics 2450	Introduction to Statistical Analysis	3	
Required courses (17 hours)			
AS 2940 OR GEOG 5900	Basic Meteorology <u>OR</u> Climatology	3	
5921	Boundary Layer Climatology	3	
5922	Microclimatological Measurements	3	
AS/GEOG 5940	Synoptic Meteorology Laboratory	2	
5941	Synoptic Analysis and Forecasting	3	
5942	Severe Storm Forecasting	3	
Electives. Choose five of the			
following courses (15-16 hours)			
	Introduction to Physical Geography OR Physical Geography and		
2960 OR 2800	Environmental Issues	3	
	Global Climate Change: Causes and Consequences OR Global		
3900 OR 3901H	Climate and Envt'l Change	3	
3980	Biogeography: An Introduction to Life on Earth	3	
AS 5901	Climate System Modeling: Basics and Applications	3	
AS 5950	Atmospheric Thermodynamics	3	
AS 5951	Dynamic Meteorology I	3	
AS 5952	Dynamic Meteorology II	3	
3882	Integrated Earth Systems: Confronting Global Change	3	
5200	Elements of Cartography	3	
5220	Fundamentals of Geographic Information System	3	
4101	Undergraduate Research and Professionalization Seminar	3	
Successor to E	Principles of Oceanography	3	
	The Cryosphere Earth Sci (3 credits) or Glaciers and Landscapes		
Successor to E	5 Earth Sci (4 credits)	3 or 4	
	Total Program Hours		
	Minimum Program Hours	32-33	
	Prerequisite Hours	23	
Advisor Signature and Date:		•	
Name:			
Major/Specialization:			
Campus ID:			

Segment of Major Program and		Credit	
Course Number	Course name	hours	Grade
Required Prerequisites or Supple	ments to the Major		
Math 1251	Calculus 1	5	
Math 1252	Calculus 2	5	
Physics 1250	Introduction to Calculus-based Physics 1	5	
Statistics 2450	Introduction to Statistical Analysis	3	
Required Courses (19-20 hours)			
2960 OR 2800	Introduction to Phys Geog OR Phys Geog and Environmental Issues	3 or 4	
3980	Biogeography: An Introduction to Life on Earth	3	
	Global Climate Change: Causes and Consequences OR Global Climate and Envt'l		
3900 OR 3901H	Change	3	
AS 2940 OR GEOG 5900	Basic Meteorology OR Climatology	3	
	Quantitative Geographical Methods OR Elements of Cartography OR		
5100 OR 5200 OR 5220	Fundamentals of Geographic Information Systems	3	
Successor to ES	Geomorphology	4	
Electives. Choose five of the follo	wing courses (at least three must be from Geography or Atmospheric Sciences) (	15-16 ho	urs)
Note that some courses may hav	e prerequisites beyond those required for the major.		
5200	Elements of Cartography	3	
5201	Computer Cartography and Geographic Visualization	3	
5220	Fundamentals of Geographic Information Systems	3	
	Spatial Simulation and Modeling in GIS; GIS Applications in Social Science and		
5221 OR 5222 OR 5223	Business; Design and Implementation of GIS	3	
5270	Geographic Applications in Remote Sensing	3	
4101	Undergraduate Research and Professionalization Seminar	3	
Choice	One Human Geography course 4000-level or higher	3	
5921	Boundary Layer Climatology	3	
5922	Microclimatological Measurements	3	
AS/GEOG 5940	Synoptic Meteorology Laboratory	3	
5941	Synoptic Analysis and Forecasting	3	
5942	Severe Storm Forecasting	3	
AS 5901	Climate System Modeling: Basics and Applications	3	
AS 5950	Atmospheric Thermodynamics	3	
AS 5951	Dynamic Meteorology I	3	
AS 5952	Dynamic Meteorology II	3	
3882	Integrated Earth Systems: Confronting Global Change	3	
Successor to ES	Principles of Oceanography	3	
Successor to ES	Water in the Basin Hydrologic Cycle	3	
Successor to ES	The Cryosphere	3	
Successor to ES	Glaciers and Landscapes	4	
	Total Program Hours	24.25	
	Minimum Program Hours	34-36	
	Prerequisite Hours	18	
Advisor Signature and Date:			
Name:			
Major/Specialization:			

Segment of Major Program and Course			
Number	Quarter course name	hours	Grade
Required Prerequisites or Supplements			
to the Major			
Math 151, 152, 153	Calculus and Analytical Geometry I-III	15	
Physics 131, 132	Introductory Physics	10	
Statistics 245	Introduction to Statistical Analysis	5	
Required courses (28-30 Hours)			
AS230 or Geog520	Basic Meteorology OR Climatology	5	
620	Synoptic Meteorology Laboratory	3	
622.01	Boundary Layer Climatology	5	
622.02	Microclimatological Measurements	5	
623.01	Synoptic Analysis and Forecasting	5	
623.02	Severe Storm Forecasting	5	
Electives. Choose five of the following			
courses (25 Hours)			
AS 629	Climate System Modeling: Basics and Applications	5	
AS 631	Atmospheric Thermodynamics	5	
AS 637	Dynamic Meteorology I	5	
AS 638	Dynamic Meteorology II	5	
210	Physical Geography and Environmental Issues	5	
420	Global Climate Change: Causes and Consequences	5	
490	Biogeography: An Introduction to Life on Earth	5	
580	Elements of Cartography	5	
597.02	Integrated Earth Systems: Confronting Global Change	5	
607	Fundamentals of Geographic Information Systems	5	
	Undergraduate Research and Professionalization Seminar OR		
795	Seminar in Geography	5	
ES 206	Principles of Oceanography	5	
ES 650	The Cryosphere Earth Sci or Glaciers and Landscapes	5	
	Total Program Hours		
	Minimum Program Hours (including prereqs)	53-55	
	Prerequisite Hours	15	
Advisor Signature and Date:			
Name:			
Major/Specialization:			
Campus ID:			

# Curriculum Advising Sheets – Quarter – Climatic Studies

# Curriculum Advising Sheets – Quarter – Physical Geography

Segment of Major Program and		Credit	
Course Number	Quarter course name	hours	Grade
Required Prerequisites or			
Supplements to the Major			
MATH 151,152	Calculus and Analytical Geometry I-II	10	
PHYS 131	Introductory Physics	5	
STATS 245	Introductory Physics Introduction to Statistical Analysis	5	
STATS 245		5	<u> </u>
Required Courses (30 hours)			<u> </u>
220	Introduction to Physical Geography Geog 220	5	
420	Global Climate Change: Causes and Consequences Geog 420	5	
490	Biogeography: An Introduction to Life on Earth Geog 490	5	
520	Basic Meteorology AS 230 OR Climatology Geog 520	5	
597.02	Integrated Earth Systems: Confronting Global Change Geog 597.02	5	
ES 550	Geomorphology Earth Sci 550	5	
Flasting Chasse fine of the follow	ing an under the second by from Coordinate and Atmospheric Col		25
hours)	ing courses (at least three must be from Geography or Atmospheric Scie	inces): (23	-25
210	Physical Geography and Environmental Issues	5	
580	Elements of Cartography	5	
680	Computer Cartography and Geographic Visualization	5	
607	Fundamentals of GIS	5	
685	Intermediate Geographic Information Systems	5	
	Undergraduate Research and Professionalization Seminar OR		
795	Seminar in Geography	5	
600+	One Human Geography course 600-level or higher	5	
620	Synoptic Meteorology Laboratory	3	
622.01	Boundary Layer Climatology	5	
622.02	Microclimatological Measurements Geog	5	
623.01	Synoptic Analysis and Forecasting Geog	5	
623.02	Severe Storm Forecasting 623.02	5	
AS 629	Climate System Modeling: Basics and Applications	5	
AS 631	Atmospheric Thermodynamics	5	
AS 637	Dynamic Meteorology I	5	
AS 638	Dynamic Meteorology II	5	<u> </u>
ES 206	Principles of Oceanography	5	
ES 410	Water in the Basin Hydrologic Cycle	5	<u> </u>
ES 450	The Cryosphere	5	<u> </u>
ES 650	Glaciers and Landscapes	5	<u> </u>
	Total Program Hours		<u> </u>
	Minimum Program Hours (including prereqs)	53-55	<u> </u>
	Prerequisite Hours	15	<u> </u>
Advisor Signature and Date:	· ·		·
Name:			
Major/Specialization:			
Campus ID:			

# **Transition policy:**

Students who began their degree under quarters will not be penalized as we move to semesters, either in terms of progress towards their degree or their expected date of graduation. The sequence of classes in the major is largely very flexible. As addressed above (in the program rationale) we further increased flexibility in the physical geography path by slightly modifying the list of required courses. Therefore, we do not see the need for any bridge courses in Geography.

# Curriculum map, indicating how program goals are accomplished via specific courses

	KEY:	1=Beg.	2=Int.	3=Adv.
	Learning outcome A	Learning	Learning outcome C	Learning outcome D
		В		
Required Prerequisites or Supplements to the Major				
1. For Climatic Studies path (23 Hours)				
Math 1251, 1252		1		
Physics 1250, 1251	1	1		
Statistics 2450	1	1		
2. For the Physical Geography path (18 hours)				
Math 1251, 1252		1		
Physics 1250	1	1		
Statistics 2450	1	1		
Required courses				
1. For Climatic Studies path (17 hours)				
AS 2940 OR GEOG 5900	1	1,2	1,2	
5921	3		2	
5922		3		3
AS/GEOG 5940	1	2		2
5941	2	3	2	
5942	3	3	2	
2. For Physical Geography path (19-20 hours)				
2960 OR 2800	1	1	1	1
3980	2	2	2	2
4900	2		3	
AS 2940 OR GEOG 5900	1	1,2	1,2	
5100 OR 5200 OR 5220	1, 2	1, 2		1
Successor to ES 550	2	2		
Electives				
1. For Climatic Studies path.				
2960 OR 2800	1	1	1	1
4900	2		3	
3980	2	2	2	2
AS 5901	2	3	2	
AS 5950	2	2		
AS 5951	3	2		
AS 5952	3	3		
3882	1	2	1	
5200	1	1	2	1
5220	1	1		
4101		3	3	3
Successor to ES 206	1	1		
Successor to ES 450 or 650	2, 3		2	
2. For Physical Geography path.				

5200	1	1	2	1
5201	2	2	3	
5220	1	1		
5221 OR 5222 OR 5223	3	2	2	3
5270	2	2		2
4101		3	3	3
One Human Geography course 4000-level or higher	2, 3			
5921	3		2	
5922		3		3
AS/GEOG 5940	1	2		2
5941	2	3	2	
5942	3	3	2	
AS 5901	2	3	2	
AS 5950	2	2		
AS 5951	3	2		
AS 5952	3	3		
3882	1	2	1	
Successor to ES 206	1	1		
Successor to ES 410	2			
Successor to ES 450	2	2		
Successor to ES 650	3	2		

Learning Outcome A: Students acquire fundamental concepts of geography

Learning Outcome B: Students achieve familiarity with methods used in geography

Learning Outcome C: Students can communicate geographical concepts and methods orally, visually, and/or in writing

Learning Outcome D: Students apply geographical concepts and methods in experiential settings, including internships, field work, study abroad, research, and through international experience.