

WINONA STATE UNIVERSITY

PROPOSAL FOR GENERAL EDUCATION PROGRAM COURSES

Department GEOGRAPHY

Date MARCH 18, 2013

212
Course No.

PHYSICAL GEOGRAPHY
Course Name

3
Credits

Prerequisites _____

GEP Goal Area(s):*

CORE GOAL AREAS

- Goal 1: Communication
- Goal 3: Natural Science
- Goal 4: Mathematics/Logical Reasoning
- Goal 5: History and the Social and Behavioral Sciences
- Goal 6: The Humanities and Fine Arts

THEME GOAL AREAS

- Goal 7: Human Diversity
- Goal 8: Global Perspective
- Goal 9: Ethical and Civic Responsibility
- Goal 10: People and the Environment

* Courses may be submitted for up to two Goal Areas.

Additional Requirement Categories (list number of credits desired in appropriate category):

Intensive:

- 1. Writing
- 2. Oral Communication
- 3a. Mathematics/Statistics
- 3b. Critical Analysis

Physical Development and Wellness

Provide information as specified in the previous directions.

Attach a **General Education Program Approval Form**.

Department Contact Person for this Proposal:

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Name (please print)

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Phone

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e-mail address

[Revised 9-6-11]

WINONA STATE UNIVERSITY
GENERAL EDUCATION PROGRAM APPROVAL FORM

Routing form for General Education Program Course approval.

Course GEOG 212

Department Approval		
<u>M. Norman</u> Department Chair	<u>MARCH 18, 2013</u> Date	<u>MNORMAN@WINONA.EDU</u> e-mail address
Dean's Recommendation <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No*		
<u>M. Norman</u> Dean of College	<u>4-4-13</u> Date	
*If the dean does not approve the proposal, a written rationale should be provided to the General Education Program Subcommittee.		
GEPS Recommendation <input type="checkbox"/> Approved <input type="checkbox"/> Disapproved		
_____	_____	_____
Chair, General Education Program Subcommittee	Date	
A2C2 Recommendation <input type="checkbox"/> Approved <input type="checkbox"/> Disapproved		
_____	_____	
Chair of A2C2	Date	
Faculty Senate Recommendation <input type="checkbox"/> Approved <input type="checkbox"/> Disapproved		
_____	_____	
President of Faculty Senate	Date	
Academic Vice President Recommendation <input type="checkbox"/> Approved <input type="checkbox"/> Disapproved		
_____	_____	
Academic Vice President	Date	
Decision of President <input type="checkbox"/> Approved <input type="checkbox"/> Disapproved		
_____	_____	
President	Date	
Please forward to Registrar.		
Registrar	_____	Please notify department chair via e-mail that curricular change has been recorded.
	Date entered	

GEOG 212: Physical Geography

Course Outline

- I. Physical Geog: Earth Environments and Systems
 - a. Study of Geography
 1. Physical Geography
 2. Geographic technology and tools
 3. Perspectives in Physical Geography
 4. Physical Science Perspective
 5. Environmental Perspective
 6. Equilibrium in Earth Systems
- II. Representations of Earth
 - a. Maps and Location on Earth
 1. Earth shape and size
 2. Globes and great circles
 3. Longitude and Latitude
 - b. Geographic Grid
 1. Parallels and Meridians
 2. Longitude and Time
 3. International Date Line
 - c. Maps and Map Projections
 1. Advantages of maps
 2. Limitations of maps
 - d. Modern Map Making
 1. Geographic Information Systems
- III. Solar Energy and Earth/Sun Relationships
 - a. Solar System
 1. Planets
 - b. Earth/Sun System
 1. Sun and solar energy
 2. Solar energy and Atmosphere dynamics
 3. Sun Angle and Insolation
 4. Sun Angle, Duration, and Insolation
 5. Ana lemma
- IV. Atmosphere, Temperature, and Earth Energy Budget
 - a. Characteristics of the Atmosphere
 1. Atmospheric Composition
 2. Environmental Issues
 - b. Energy Transfer
 1. Radiation
 2. Conduction
 3. Convection
 4. Advection
 5. Latent Heat Exchange
 - c. Earth Energy Budget
 1. Heating Atmosphere
 2. Energy Balance
 - d. Air temperature
 1. Temperature and Heat
 2. Short-term Temperature Variations
 3. Vertical Temperature Distributions

- 4. Controls of Earth's Surface Temperature
- 5. Annual Temperature Changes
- e. Weather and Climate
- f. Complexity of Earth's Energy Systems
- V. Atmospheric Pressure, Winds, and Circulation Patterns
 - a. Variations in Pressure
 - 1. Pressure and Elevation
 - 2. Horizontal Pressure
 - b. Basic Pressure Systems
 - 1. Convergence and Divergence
 - c. Winds
 - 1. Winds at Pressure Gradients
 - 2. Coriolis Effect
 - 3. Winds, Cyclones and Anticyclones
 - d. Global Pressure Systems
 - 1. Global Pressure Balls
 - 2. Seasonal Pressure Difference
 - e. Global Wind Systems
 - 1. Model of Atmospheric Circulation
 - 2. Winds and Latitude
 - 3. Migration of Winds
 - 4. Upper Air Winds at the Jet Stream
 - f. Regional and Local Winds
 - 1. Monsoon Winds
 - 2. Local Winds
 - g. Ocean Atmospheric Interactions
 - 1. Ocean Currents
 - 2. El Niño
 - 3. North Atlantic Oscillation
- VI. Humidity, Condensation, and Precipitation
 - a. Hydrologic Cycle
 - b. Water in the Atmosphere
 - 1. Water Budget
 - 2. Humidity and Saturation
 - c. Source of Atmospheric Moisture
 - 1. Evaporation and Transpiration
 - 2. Fog
 - 3. Dew and Frost
 - 4. Clouds
 - d. Adiabatic Heating and Cooling
 - 1. Instability and Stability
 - e. Precipitation
 - 1. Forms of Precipitation
 - f. Distribution of Precipitation
 - 1. Over time
 - 2. Horizontally
 - 3. Latitudinal
 - g. Precipitation Variability
- VII. Air Masses and Weather Systems
 - a. Air Masses
 - 1. Modification and Stability
 - 2. North America Air Masses

- b. Fronts
 - 1. Cold
 - 2. Warm
 - 3. Stationary
- c. Atmospheric Disturbances
 - 1. Cyclones and Anticyclones
 - 2. Mid-latitude Cyclones
 - 3. Hurricanes
 - 4. Thunderstorms
 - 5. Tornadoes
 - 6. Snow storms and Blizzards
 - 7. Tropical Storms
- VIII. Global Climate and Climate Changes
 - a. Classify in Climates
 - 1. Thornthwaite System
 - 2. Köppen System
 - b. Climatic Regions
 - c. Climates of the Past
 - 1. Ice Ages
 - d. Climate Changes and Causes
 - 1. Orbital Variations
 - 2. Ocean Changes
 - 3. Landmass Changes
 - 4. Impact Events
 - 5. Atmospheric Changes
 - e. Predicting Future Climates
 - 1. Global Warming
- IX. Low Latitude and Arid Climates
 - a. Tropical Wet Climates
 - 1. Rain Forest
 - 2. Savanna
 - 3. Monsoon
 - b. Arid Climates
 - 1. Desert
 - 2. Semiarid
- X. Mid-latitude, Polar and Highland Climates
 - a. Subtropical
 - 1. Mediterranean
 - 2. Marine West Coast
 - 3. Humid Subtropical
 - b. Continental Climates
 - 1. Continental Hot Summers
 - 2. Continental Warm Summers
 - 3. Subarctic
 - c. Polar Climate
 - 1. Tundra
 - 2. Ice-Sheet
 - d. Highland
 - e. Human Activities in Climate
- XI. Biogeography of Soils
 - a. Ecosystems
 - 1. Major Components

- 2. Energy Flows
- b. Human Impact on Ecosystems
- c. Major Soil Components
 - 1. Inorganic Matter
 - 2. Organic Matter
 - 3. Soil Water
- d. Factors Effecting Soil Formation
 - 1. Parent Material
 - 2. Organic Activates
 - 3. Climate
 - 4. Land Surface
 - 5. Time
- e. Soil Classification
 - 1. Lateralization
 - 2. Calcification
 - 3. Podzolization
- XII. Earth Materials and Plate Tectonics
 - a. Earth's Structure
 - 1. Core
 - 2. Mantle
 - 3. Crust
 - b. Minerals
 - c. Rocks
 - 1. Igneous
 - 2. Sedimentary
 - 3. Metamorphic
 - 4. Rock Cycle
 - d. Plate Tectonics
 - 1. Continental Drift
 - 2. Seafloor Spreading
 - 3. Movement
 - 4. Hot Spots
 - e. Growth of Continents
- XIII. Tectonic and Volcanic Processes
 - a. Land forms
 - b. Tectonic Forces and Rock Structure
 - 1. Compression
 - 2. Tension
 - 3. Earthquakes and Hazards
 - c. Igneous Processes
 - 1. Volcanic Eruptions
 - 2. Volcanic Landforms
 - d. Human Actions
- XIV. Weathering and Mass Wasting
 - a. Weathering
 - 1. Physical
 - 2. Chemical
 - b. Variability in Weathering
 - 1. Rocks
 - 2. Climate
 - c. Mass Wasting
 - 1. Slow

- 2. Fast
- d. Human Actions
- XV. Underground Water and Karst
 - a. Nature of Underground Water
 - b. Groundwater Use
 - c. Karst Landforms
 - 1. Limestone Caves
- XVI. Fluvial Processes
 - a. Streams and Runoff
 - 1. Drainage Basins
 - b. Flow Properties
 - c. Fluvial Processes
 - 1. Stream Erosion
 - 2. Stream Transportation
 - 3. Stream Deposition
 - d. Fluvial Landscapes
 - 1. Upper Course
 - 2. Middle Course
 - 3. Lower Course
 - 4. Deltas
 - e. Stream Hazards and People
- XVII. Arid Landforms and Winds
 - a. Surface Runoff
 - 1. Erosion
 - 2. Deposition
 - b. Wind Erosion
 - c. Wind Deposition
 - d. Sand Dunes
 - e. Loess Deposits
- XVIII. Glacial Systems
 - a. Glacier Formation
 - b. Alpine Glaciers
 - 1. Erosion
 - 2. Deposition
 - c. Continental Glaciers
 - 1. Existing Continental Glaciers
 - 2. Pleistocene Glaciation
 - 3. Glaciers and Landforms
- XIX. Coastal Processes
 - a. Coastal Zone
 - b. Origin of Waves
 - 1. Tides
 - 2. Tsunamis
 - 3. Winds
 - c. Coastal Landforms
 - 1. Erosion
 - 2. Deposits
 - d. Islands and Coral Reefs

GEOG 212: Physical Geography

Student Competencies – <i>Goal 10: People and the Environment</i>	Learning Activities	Assessment Plan
Students will be able to: (a) explain the function of various natural ecosystems and how humans have adapted to them.	Students will learn through lectures, class discussion, reading, and videos about the interrelationship of the physical factors causing variations in activities creating differences in the current earth's surface and locations.	Students will be tested on this information. Exams will be objective with some short answer questions. Students will also be evaluated on short out of class problem solving assignment. The out of class assignments will allow them to classify information such as time, sun angle, humidity, and other pertinent topics.
Students will be able to: (b) explain the interrelationships of biophysical and social/cultural systems.	Students will learn the relationships between climatic changes and the altering of the atmosphere through human activities. The effects of global warming and variations will be presented using readings, lectures, and discussions of class presented audio visual material.	The students will be assessed through the use of exams in objective and essay formats.
Students will be able to: (c) explain how institutional arrangements have been evolving to deal with environmental problems.	Students will note the role various social groups have had making the environment cleaner and safer. Material will be presented through lectures, class discussions, and readings that demonstrate changes made to retard harmful effects of environmental damage.	Students will be assessed through objective and essay exams.
Students will be able to: (d) evaluate the major critical environmental issues by demonstrating the effect of society's living standards has on the environment.	Students will use data to determine the role fossil fuels and regulations have on attempting to slow environment damage. Material will be presented through lectures, reading, and discussions to demonstrate the effects of using less fossil fuel have on the environment.	Students will be assessed through objection and short answer essay exams.
Students will be able to: (e) assess alternate solutions to environmental problems.	Lecture material and readings, plus class discussion will be used to cite the impact different energy uses have on the environment. Building regulations will be discussed and costs included in using the best methods for society to lessen the impact on the natural ecosystem.	Students will be evaluated by using objective and short answer exams.
Students will be able to: (f) defend the actions they take on environmental issues.	Alternatives to current unfriendly aspects of human societies' effects on the environment will be presented in lecture, class discussions, and readings	Students will be evaluated by presenting these information in an essay presentation.