

GEOGRAPHY OF MICHIGAN & THE GREAT LAKES REGION

GEO 333

Spring Semester, 2022

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Course Goals: GEO 333 is intended for students who want an overview of the basic geography of Michigan. Emphasis will be on the *physical* resources of the state, and how *humans have utilized* those resources. Geographic patterns - their occurrence, relevance, and influence on human society - will be stressed, and in order to better comprehend and follow the lectures, knowledge of geographic patterns and basic place names in Michigan is expected. The course has no prerequisites.

Text: Schaetzl, R.J., Darden, J.T. and D. Brandt. (editors) 2009. Michigan Geography and Geology. Pearson Custom Publishing, Boston, MA. **Recommended**

Coursepack: Geography of Michigan coursepack and lecture materials. Available only at the Student Bookstore. This coursepack is **required** for all GEO 333 students.

Other Resources: Web page (bookmark it!): <https://project.geo.msu.edu/geogmich/> Material for a given lecture may not all be on one page, but may be scattered throughout a few different sections of the web page. See the course outline (below) for details.

Lectures: Posted on D2L as video files, as long as required by MSU. Online lectures will be done asynchronously. Because so much of the material in this class is NOT available in a textbook or even on the web page, I urge everyone to view each lecture video carefully, taking good notes. Viewing the lecture videos more than once is strongly advised.

Exams: GEO 333 will have four exams and two quizzes, each weighted as shown below.

Quiz 1: 40 pts

Quiz 2: 60 pts

First exam: 100 pts (includes all material covered since Day 1)

Second exam: 100 points (includes all material covered since Day 1)

Third exam: 90 points (includes only material covered since the second exam)

Fourth exam: 90 points (includes all material covered since the second exam)

End of lecture questions: 20 points

TOTAL: 500 points possible in GEO 333

Students will not be allowed to turn in their exam or quiz without first presenting a valid MSU ID or another form of identification with a photo on it. There will be no exceptions to this policy!

Exams, quizzes, etc.: Four exams and two quizzes will be given in GEO 333. They will contain a mix of various types of questions, some T/F and multiple choice questions, as well as some open-ended, short answer/short essay questions. Many of the questions will focus on an image, map, or some sort of visual – the student will be asked a question about what is being shown. Please LEARN and KNOW the materials as well as you can prior to the exam so that you can move through the questions as quickly as possible. Students will have 50 minutes to complete each exam.

End of lecture questions. Randomly, at the end of 6 lectures during the course of the semester, I will end the class 2-3 minutes early and post a 4-point question (or questions) on the screen. I call these “end of lecture” (EOL) questions. The question(s) will come from that day’s lecture, and the answer to it will be *easy*, if you are there and were paying attention. You MAY use your notes or the D2L materials to answer the question, but you may not discuss the answer with anyone or look at anyone else’s notes – no cheating. Each student will write their name, student number, and the answer to the question on a small piece of paper, and hand it to the TA. You’ll be emailed the EOL question results. This is my way of promoting attendance and attention, and in turn, raising everyone’s grade. Each student will be allowed to drop their lowest EOL score, as a way of not penalizing someone who legitimately had to be absent. *There are no “make-ups” to EOL questions.*

Quizzes. Two quizzes will be given, each during the last 20 minutes of class. Quiz dates will be announced as soon as we know about online vs live teaching. Quiz #1 will be involve naming **all** the counties of Michigan on a county outline map. Quiz #2 will be similar to the first, except that identification will involve major cities, rivers, lakes, bays, islands and landforms. For each quiz, the number of correct answers will be determined and then that score will be adjusted, to arrive at a final grade out of 40 (1st quiz) or 60 (2nd quiz). There are no secrets as to what is on the quizzes. Here’s what you can expect:

QUIZ 1: You will be given a blank county outline map of Michigan and will be expected to fill in the name of each of Michigan’s 83 counties (names are not provided, spelling must be “very close” to be judged correct).

QUIZ 2: You will be given several blank maps of Michigan, and will be expected to fill in or identify physical and cultural features on the map.

RIVERS: Presque Isle, Ontonogan, Sturgeon (there are TWO of them, both in the UP; you need only find one), Michigamme, Menominee, Escanaba, Tahquamenon, Manistique, St. Joseph, Kalamazoo, Grand, Muskegon, Manistee, St. Marys, St. Clair, Detroit, Pere Marquette, Thunder Bay, Au Sable, Rifle, Tittabawassee, Shiawassee, Flint, Cass, Saginaw, Huron, Raisin, Black (the one in Sanilac County). The rivers are drawn on the map and the names are given; the student must match the correct number to the correct river.

LAKES (largest to smallest): St. Clair, Houghton, Torch, Burt, Charlevoix, Mullett, Gogebic, Portage, Crystal, Manistique, Black, Higgins, Hubbard, Indian. Locations are indicated on the maps but names are NOT given (spelling must be “close”).

CITIES: Detroit, Grand Rapids, Lansing, Flint, Ann Arbor, Warren, Alpena, Traverse City, Houghton, Marquette, Munising, Battle Creek, Kalamazoo, Benton Harbor, St. Joseph, Muskegon, Ludington, Charlevoix, Gaylord, Bay City, Monroe, Midland, Saginaw, Port Huron, Sault Ste. Marie, Manistique, Escanaba, Ironwood, Iron Mountain, Jackson, Niles, Adrian, Cadillac, Mt. Pleasant, Menominee, Dearborn, Petoskey, Manistee. Cities are represented on the map as labeled dots, you must provide the name for each city/dot.

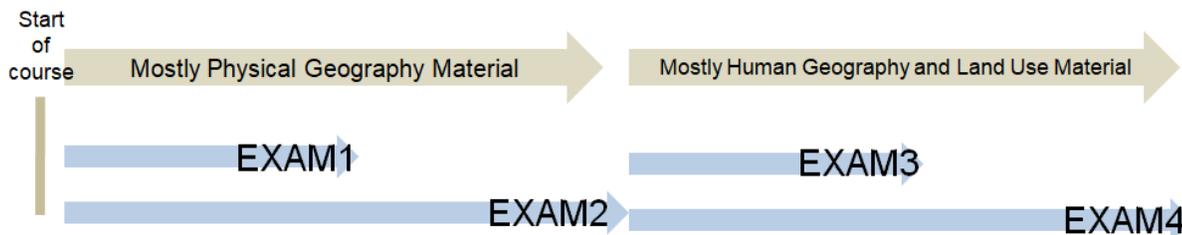
BAYS: Keweenaw Bay, Big Bay de Noc, Grand Traverse Bay, Whitefish Bay, Huron Bay, Thunder Bay, Saginaw Bay, Little Traverse Bay. Locations are indicated on the maps but names are NOT given (spelling must be close).

LANDFORMS: Huron Mountains, Garden Peninsula, Whitefish Point, St. Clair Delta, Seney Swamp, Keweenaw Range/Copper Country, Chippewa County Clay Plains, Sleeping Bear Dunes, SE Michigan Interlobate moraine, Grayling Fingers, Porcupine Mountains, Antrim-Charlevoix drumlin field, Menominee drumlin field, Leelanau peninsula. The landforms are drawn on the map and the names are given; the student must match the correct number to the correct landform.

ISLANDS: Less Cheneaux Islands, Beaver Island, North and South Manitou Islands, Mackinac Island, Bois Blanc Island, Isle Royale, Sugar Island, Neebish Island, Drummond Island. Locations are indicated on the maps but names are NOT given (spelling must be close).

Exams. Part I of this course is on its Physical Geography. The first exam – on basic hard rock geology of Michigan, focusing on the Michigan Geologic Basin - will cover material discussed since the beginning of the course. The second exam will be cumulative from the start of the course, but will focus on additional “geologic topics” that have been discussed since Exam 1. In essence, Exam 2 covers *all* of the Physical Geography topics.

Part II of this course is mainly on Human/Historical Geography, and land use patterns in the state. Exam 3 covers human geography topics, including Michigan’s history. It does NOT include anything that we covered before Exam 2. The fourth exam - given during Finals week - will be cumulative on all material (mostly Human Geography and Land Use material) since Exam 2. See the graphic below for an illustration of all this.



The quizzes will be returned to you. However, only parts of the exams will be returned. We will go over those parts in a subsequent class. *If you miss an exam*, you will normally be assigned, for the missed exam, the average grade from your other three exams - but ONLY provided that you have a valid excuse. Make-up exams are not given. If an exam is missed due to a family funeral, a newspaper obituary (with the date of the newspaper issue clearly shown) must be presented to the instructor within five class days of the missed exam or the student will receive a grade of zero for the exam.

Grading: Using your point total, your percentage will be calculated and rounded to the nearest tenth of a percentile. Based on that number, a final course grade will be assigned, using the grade scale shown below.

87% or greater = 4.0

83% - 86.9% = 3.5

75% - 82.9% = 3.0

71% - 74.9% = 2.5

62% - 70.9% = 2.0

58% - 61.9% = 1.5

50% - 57.9% = 1.0

less than 50% is not passing. No exceptions.

RELATED COURSES

GEO 208: Physical Geography of National Parks

GEO 330: Geography of the United States

GEO 410: Plant Geography

GEO 407: Regional Geomorphology of the United States

GEO 408: Soil Geomorphology Field Study

GEO 453: Metropolitan Environments

GLG 302: Geology of Michigan

FOR 101: Michigan’s Forests

FW 207: Great Lakes Biology and Management

FW 284: Natural History and Conservation in Michigan

HST 320: History of Michigan

PLB 218: Plants of Michigan

PRR 100: Recreation in Michigan Natural Resources
RD 440: Resource Development Public Policy Process in Michigan
ZOL 361: Michigan Birds

(Please let me know if you have any additional suggestions for this list)

Course outline. This outline assumes that we will be “live teaching” at some early point in the semester. I reserve the right to post video lectures at any time, should I fall behind from this schedule.

Jan 10: Introductory comments, course structure, goals and grading; the GEO 333 web page
project.geo.msu.edu/geogmich/
project.geo.msu.edu/geogmich/part-one.html
BOOK chapter 1

Jan 12-14: Geologic concepts; geologic time; the Precambrian Era in Michigan; discovery and geography of Michigan’s iron ranges
project.geo.msu.edu/geogmich/part-two-A.html
The iron mining parts of this page: project.geo.msu.edu/geogmich/part-five-G.html
BOOK chapters 2 and 3

Jan 17: No class. MLK Day

Jan 19-24: Geology of iron ore; history and development of iron mining
The iron mining parts of this page: project.geo.msu.edu/geogmich/part-five-G.html
project.geo.msu.edu/geogmich/Marquette-iron-range.html
BOOK chapter 11

Jan 26-28: The geography of iron and steel; the Soo Locks; shipping on the Great Lakes
project.geo.msu.edu/geogmich/part-five-E.html
The iron and steel parts of this page: project.geo.msu.edu/geogmich/part-five-B.html
BOOK chapter 30

Jan 31: Moving iron ore to the steel mills
project.geo.msu.edu/geogmich/iron_ore__taconite.html
Examine the iron and steel parts of this page: project.geo.msu.edu/geogmich/part-five-B.html

Feb 2: Quiz #1. Steelmaking: the end point of iron

Feb 4: Iron and steel, cont.

Feb 7: Geology of the Copper Range and Isle Royale; History and development of copper mining
The copper parts of this page: project.geo.msu.edu/geogmich/part-five-G.html
The Precambrian parts of this page: project.geo.msu.edu/geogmich/part-two-A.html
project.geo.msu.edu/geogmich/copperrange.html
BOOK chapter 12

Feb 9: Copper mining. **Quiz #2**

Feb 11-14: Sandstones of the UP; waterfalls, cuestas and the Michigan Paleozoic basin

most everything beneath "Paleozoic Era" on this page:

project.geo.msu.edu/geogmich/part-two-A.html

project.geo.msu.edu/geogmich/niagara.html

project.geo.msu.edu/geogmich/picturerock.html

project.geo.msu.edu/geogmich/waterfalls.html

BOOK chapter 4

Feb 16: Early Paleozoic rocks of the Michigan basin; glass; Silurian rocks in the Michigan basin - a little bit of everything; limestone and cement

project.geo.msu.edu/geogmich/sandstones.html

project.geo.msu.edu/geogmich/paleozoic_limestone.html

project.geo.msu.edu/geogmich/limestone_mining.html

project.geo.msu.edu/geogmich/portland_cement.html

project.geo.msu.edu/geogmich/maxton_plains.html

Feb 18: More Silurian wealth: hydrocarbons

Everything below the heading "Hydrocarbons (oil and gas)" on this page:

project.geo.msu.edu/geogmich/part-five-G.html

BOOK chapter 10

Feb 21: Exam 1.

Feb 23-25: Salt and brines; Devonian and Mississippian rocks in the Michigan basin; the story of Dow chemical; shale, clay and bricks

project.geo.msu.edu/geogmich/evaporite.html

project.geo.msu.edu/geogmich/dow.html

Everything below "salt" on this page: project.geo.msu.edu/geogmich/part-five-G.html

project.geo.msu.edu/geogmich/shale_and_clay.html

Feb 28-Mar 2: Coal; gypsum; Major aquifers of the Michigan basin; the period of erosion and weathering; karst landscapes, sinkholes and caves

project.geo.msu.edu/geogmich/coal.html

project.geo.msu.edu/geogmich/gypsummining.html

project.geo.msu.edu/geogmich/strat_column.html

project.geo.msu.edu/geogmich/NE_Mikarst.html

project.geo.msu.edu/geogmich/groundwater.html

BOOK chapter 16

Mar 4: *POSTED as an online lecture (I am out of town)*

PART-II: The last 2 million years; Glaciation: onset of the ice, major ice lobes; deglaciation

The first five web pages listed on this page: project.geo.msu.edu/geogmich/part-two-B.html

BOOK chapter 17

Mar 7-11: University official break

Mar 14-16: Continued retreat of the ice; end moraines, outwash plains and lake plains

The three-part-deglaciation sequence listed here:

project.geo.msu.edu/geogmich/part-two-B.html

project.geo.msu.edu/geogmich/moraines.html

project.geo.msu.edu/geogmich/drumlins.html

Mar 18: Glacial sediments, proglacial lakes, and glacial landform regions

The pages associated with glacial lakes, on this page: project.geo.msu.edu/geogmich/part-two-B.html

The glacial landforms listed on this page: project.geo.msu.edu/geogmich/part-two-C.html

Many of the pages found here also are associated with glaciation:

project.geo.msu.edu/geogmich/part-three.html

project.geo.msu.edu/geogmich/mackinacchannel.html

project.geo.msu.edu/geogmich/Autrain-whitefish.html

project.geo.msu.edu/geogmich/St.Clair-delta.html

BOOK chapter 13

Mar 21: The Great Lakes in postglacial time; Michigan's dunes and sand mining

Many pages here have Great Lakes topics included within them:

project.geo.msu.edu/geogmich/part-two-E.html

Dunes are found on several pages here: project.geo.msu.edu/geogmich/part-two-C.html

BOOK chapter 18

Mar 23: The Great Lakes: diversions of water into and out of them; Coastal issues: how coasts function; coastal development and contemporary erosion problems

Many pages here have Great Lakes topics included within them: project.geo.msu.edu/geogmich/part-two-E.html

BOOK chapter 14

Mar 25: Exam 2

This is exam is cumulative – it includes all materials that we have covered to date.

Mar 28: Michigan History: The last 500 years; Native American Indians, French “invaders” and the British

All the pages within this one: project.geo.msu.edu/geogmich/part-four-A.html

Several pages within this one: project.geo.msu.edu/geogmich/part-four-B.html

BOOK chapters 26 and 27

Mar 30-Apr 1: Early Michigan, statehood and the Toledo War; Michigan's external boundaries and internal land divisions

Several pages within this one: project.geo.msu.edu/geogmich/part-four-B.html

Parts of BOOK chapter 1

Apr 4: The USPLS system of land subdivision; Michigan fever

Several pages here: project.geo.msu.edu/geogmich/part-four-B.html

BOOK chapter 28

Apr 6: Lumbering: the start, its heyday and the end game

Lumbering era materials are all located here: project.geo.msu.edu/geogmich/part-four-C.html
BOOK chapter 40

Apr 8: Post-lumbering issues; stumped wastelands; post-logging fires, the CCC

project.geo.msu.edu/geogmich/ccc.html

project.geo.msu.edu/geogmich/nationalforests.html

Most of these pages: project.geo.msu.edu/geogmich/part-five-D.html

Some of the latter pages on this page are useful: project.geo.msu.edu/geogmich/part-four-C.html

Apr 11: Exam 3.

This exam covers only material SINCE Exam 2.

Apr 13: Michigan's population trends, migration; urban sprawl and the rural-urban transition

project.geo.msu.edu/geogmich/cities.html

project.geo.msu.edu/geogmich/city_character.html

project.geo.msu.edu/geogmich/land_conversion.html

Some of these pages are pertinent: project.geo.msu.edu/geogmich/part-four-F.html

Some pages here as well: project.geo.msu.edu/geogmich/part-four-E.html

project.geo.msu.edu/geogmich/cities_of_the_future.html

Some of these pages are more pertinent than others: project.geo.msu.edu/geogmich/part-four-E.html

BOOK chapters 32 and 34

Apr 15: How we use Michigan's physical environment; Soils of Michigan; peat and muck, sod, soil quality

project.geo.msu.edu/geogmich/part-two-D.html

BOOK chapter 20

Apr 18: Major vegetation patterns in Michigan; post-lumbering changes and modern challenges; early agriculture

All of the pages here: project.geo.msu.edu/geogmich/part-two-F.html

BOOK chapter 21

Apr 20-22: Agriculture: early and later crop rotations; dairying and corn belt agriculture

project.geo.msu.edu/geogmich/agriculture_in_mi.html

project.geo.msu.edu/geogmich/settle.html

Don't ignore the many fine pages here: project.geo.msu.edu/geogmich/part-five-C.html

BOOK chapter 36

Apr 25: Agriculture: specialty crops: dry beans, sugar beets, potatoes, mint

Don't ignore the many fine pages here: project.geo.msu.edu/geogmich/part-five-C.html

BOOK chapter 37

Apr 27-29: Michigan climate and weather: factors and controls; Michigan's fruit belt and the "lake effect"

Lake effect and climate pages are here: project.geo.msu.edu/geogmich/part-two-H.html

Fruit pages are here: project.geo.msu.edu/geogmich/part-five-C.html

BOOK chapters 19 and 38

May 3: Exam 4. 12:45-2:45 pm. The exam is in our regular classroom.

This exam is cumulative but cover this exam covers only material SINCE Exam 2.