

GEOGRAPHY OF MICHIGAN & THE GREAT LAKES REGION

GEO 333

Spring Semester, 2009

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

Other Resource Materials: I also strongly urge everyone in this class to download a weekly set of course handouts and note pages. On Friday of each week, Trilby will upload a Word document that has in it maps (one per page) and graphics that we will use in lecture *the following week*. Print it out (color or B&W), place it in a 3-ring binder, and bring it to class; it will serve as an invaluable help for note-taking. Each student is also expected to examine, read and study the web page designed for this course on a frequent basis.

Web page (bookmark it!): <http://www.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 GEO 333 web page.

Exam questions may come directly from these two sources (book and web page), even if the specific topics have not been explicitly covered in lecture.

Lectures: M, W, 7:00 - 8:20, Room 118 Psychology Building. Because so much of the material in this class is NOT available in a textbook or even on the web page, attendance at lecture is *essential*.

Prerequisites: none

Course Goals: This course is intended for those 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.

Exams and Quizzes: There will be two mid-semester exams and a final exam, and two quizzes, in GEO 333. *The final exam is cumulative.* Point totals are listed above.

First exam	90 points
Second exam	90 points
Final exam (<i>cumulative</i>)	120 points
Quizzes (50 points each)	100 points
Extra credit	available (see below)
TOTAL	400 points

Students will not be allowed to turn in their exams or take a 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 will contain some T/F and multiple choice questions. Each exam will also have 2-5 short answer/short essay type questions, 20-25 “visual” questions, and perhaps a few questions involving maps. The first exam will cover material discussed since the beginning of the course. The second exam will cover only material discussed since the first exam. The final exam is comprehensive but stresses material covered since the second exam. Material from both the lecture and (to a lesser extent) the book and web page will be covered on exams. Only the essay and map portions of the exams will be returned to the students. A computer-derived answer sheet will also be returned, detailing the student's responses to the objective questions, and providing a list of the correct responses. Keys to all exams will be available in the professor's office, and students may look over any and all of their exams during office hours. *If you miss the first or second exam*, you will normally be assigned, for the missed exam, the average grade from your other two exams - provided you have a valid excuse. Make-up exams are rarely given, and are generally only allowed in cases where a doctor's excuse is presented or if the student discusses their particular dilemma with the professor well *before* the exam date. 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.

There are also two quizzes during the course of the semester. Each will be given during the last 20 minutes of lecture. Quiz #1 will 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 *percentage* of correct answers will be determined and then halved, to arrive at a final grade out of 50 possible. 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 on the map the following physical and cultural features:

RIVERS: Presque Isle, Ontonogan, Sturgeon (TWO of them, both in the UP), 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”).

Grading: A total of 400 points can be earned in this course. The scores of the three exams, the quizzes, and any extra credit points will be summed and rounded to the nearest tenth of a percentile, from which a final course grade will be assigned, based strictly on 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 200 points (50%) is **not** passing. **No exceptions.**

Extra Credit: It is possible to earn extra credit in GEO 333 by going the extra mile and helping make this course better for future students. To do this, you must provide Dr. Schaetzel with newspaper or magazine articles, images, rocks, items of historical interest, or other information that can be used to bolster the class or the web page in the future. For this type of contribution students may earn up to **5 EC points for each item**. Extra credit points are limited to 25 per person, total.

I am also open to other ideas for extra credit, within reason. **ALL EXTRA CREDIT PROJECTS ARE DUE NO LATER THAN THE DATE OF THE LAST LECTURE.**

RELATED COURSES

GEO 330: Geography of the United States and Canada

GEO 410: Geography of the plants of North America

GEO 407: Regional geomorphology of the United States

GEO 408: Soil geomorphology field study

GEO 453: Metropolitan environments

ANP 491: Great Lakes archeology

ANP 438: Great Lakes Indians

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

LECTURE AND READINGS OUTLINE

Date	Lecture topics	web page URLs for and book chapters - assigned readings
Jan 12	Introductory comments, course structure, goals and grading; the GEO 333 web page	http://www.geo.msu.edu/geogmich/ http://www.geo.msu.edu/geogmich/part-one.html BOOK chapter 1
Jan 14	PART I: The geologic basement Geologic concepts; geologic time; the Precambrian Era in Michigan; discovery and geography of Michigan's iron ranges	http://www.geo.msu.edu/geogmich/part-two-A.html Look at the iron mining parts of this page: http://www.geo.msu.edu/geogmich/part-five-G.html BOOK chapters 2 and 3
Jan 21	Geology of iron ore; history and development of iron mining	Look at the iron mining parts of this page: http://www.geo.msu.edu/geogmich/part-five-G.html http://www.geo.msu.edu/geogmich/Marquette-iron-range.html BOOK chapter 11

Jan 26	The geography of iron and steel; the Soo Locks; shipping on the Great Lakes	http://www.geo.msu.edu/geogmich/part-five-E.html Also see the iron and steel parts of this page: http://www.geo.msu.edu/geogmich/part-five-B.html The Soo Locks animation: http://www.geo.msu.edu/geogmich/Soo_Locks/soolocks.htm BOOK chapter 30
Jan 28	Moving iron ore to the steel mills; steelmaking: the end point of iron; QUIZ 1	http://www.geo.msu.edu/geogmich/iron_ore__taconite.html Examine the iron and steel parts of this page: http://www.geo.msu.edu/geogmich/part-five-B.html
Feb 2	Geology of the Copper Range and Isle Royale; History and development of copper mining	the copper parts of this page: http://www.geo.msu.edu/geogmich/part-five-G.html Precambrian parts of this page: http://www.geo.msu.edu/geogmich/part-two-A.html http://www.geo.msu.edu/geogmich/copperrange.html BOOK chapter 12
Feb 4	Sandstones of the UP; waterfalls, cuestras and the Michigan Paleozoic basin	most everything after "Paleozoic Era" on this page: http://www.geo.msu.edu/geogmich/part-two-A.html http://www.geo.msu.edu/geogmich/niagara.html http://www.geo.msu.edu/geogmich/picturerock.html http://www.geo.msu.edu/geogmich/waterfalls.html BOOK chapter 4
Feb 9	Early Paleozoic rocks of the Michigan basin; glass; Silurian rocks in the Michigan basin—a little bit of everything; limestone and cement	http://www.geo.msu.edu/geogmich/sandstones.html http://www.geo.msu.edu/geogmich/paleozoic-limestone.html http://www.geo.msu.edu/geogmich/limestone-mining.html http://www.geo.msu.edu/geogmich/portland_cement.html http://www.geo.msu.edu/geogmich/maxton_plains.html
Feb 11	More Silurian wealth: hydrocarbons QUIZ 2	everything under the heading "hydrocarbons (oil and gas)" on this page: http://www.geo.msu.edu/geogmich/part-five-G.html BOOK chapter 10
Feb 16	Salt and brines; Devonian and Mississippian rocks in the Michigan basin; the story of Dow chemical; shale, clay and bricks	http://www.geo.msu.edu/geogmich/evaporite.html http://www.geo.msu.edu/geogmich/dow.html everything under "salt" on this page: http://www.geo.msu.edu/geogmich/part-five-G.html http://www.geo.msu.edu/geogmich/shale_and_clay.html
Feb 18	Coal; gypsum Major aquifers of the Michigan basin; the period of erosion and weathering; karst landscapes, sinkholes and caves	http://www.geo.msu.edu/geogmich/coal.html http://www.geo.msu.edu/geogmich/gypsummining.html http://www.geo.msu.edu/geogmich/strat_column.html http://www.geo.msu.edu/geogmich/NE-Mikarst.html http://www.geo.msu.edu/geogmich/groundwater.html BOOK chapter 16
Feb 23	EXAM 1	
Feb 25	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: http://www.geo.msu.edu/geogmich/part-two-B.html BOOK chapter 17
Mar 2	Continued retreat of the ice; end moraines, outwash plains and lake plains	The three-part deglaciation sequence listed here: http://www.geo.msu.edu/geogmich/part-two-B.html http://www.geo.msu.edu/geogmich/moraines.html http://www.geo.msu.edu/geogmich/drumlins.html
Mar 4	Glacial sediments, proglacial lakes, and glacial landform regions	The pages associated with glacial lakes, on this page: http://www.geo.msu.edu/geogmich/part-two-B.html The glacial landforms listed on this page: http://www.geo.msu.edu/geogmich/part-two-C.html Many of the pages found here also are associated with glaciation: http://www.geo.msu.edu/geogmich/part-three.html http://www.geo.msu.edu/geogmich/mackinacchannel.html http://www.geo.msu.edu/geogmich/Autrain-whitefish.html http://www.geo.msu.edu/geogmich/St.Clair-delta.html BOOK chapter 13
Mar9-13	Spring Break	
Mar 16	The Great Lakes in postglacial time; Michigan's dunes and sand mining	Many pages here have Great Lakes topics included within them: http://www.geo.msu.edu/geogmich/part-two-E.html Dunes are found on several pages here: http://www.geo.msu.edu/geogmich/part-two-C.html BOOK chapter 18

Mar 18	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: http://www.geo.msu.edu/geogmich/part-two-E.html BOOK chapter 14
Mar 23	Part III: The last 500 years Native American Indians, French “invaders” and the British	All the pages within this one: http://www.geo.msu.edu/geogmich/part-four-A.html Several pages within this one: http://www.geo.msu.edu/geogmich/part-four-B.html BOOK chapters 26 and 27
Mar 25	Early Michigan, statehood and the Toledo War; Michigan’s external boundaries and internal land divisions	Several pages within this one: http://www.geo.msu.edu/geogmich/part-four-B.html Parts of BOOK chapter 1
Mar 30	The USPLS system of land subdivision; Michigan fever	It should be obvious which pages on this page: http://www.geo.msu.edu/geogmich/part-four-B.html are pertinent BOOK chapter 28
Apr 1	EXAM 2	
Apr 6	Lumbering: the start, its heyday and the end game; Lumbering video	Lumbering era materials are all located here: http://www.geo.msu.edu/geogmich/part-four-C.html BOOK chapter 40
Apr 8	Post-lumbering issues; stumped wastelands; post-logging fires, the CCC	http://www.geo.msu.edu/geogmich/ccc.html http://www.geo.msu.edu/geogmich/nationalforests.html and most of these pages: http://www.geo.msu.edu/geogmich/part-five-D.html some of the latter pages on this page are useful: http://www.geo.msu.edu/geogmich/part-four-C.html
Apr 13	Michigan’s population trends, migration; urban sprawl and the rural-urban transition	http://www.geo.msu.edu/geogmich/cities.html http://www.geo.msu.edu/geogmich/city_character.html http://www.geo.msu.edu/geogmich/land%20conversion.html some of these pages are pertinent: http://www.geo.msu.edu/geogmich/part-four-F.html Some pages here: http://www.geo.msu.edu/geogmich/part-four-E.html http://www.geo.msu.edu/geogmich/cities_of_the_future.html Some of these pages are more pertinent than others: http://www.geo.msu.edu/geogmich/part-four-E.html BOOK chapters 32 and 34
Apr 15	Part IV: How we use Michigan’s physical environment Soils of Michigan; peat and muck, sod, soil quality	Look here: http://www.geo.msu.edu/geogmich/part-two-D.html BOOK chapter 20
Apr 20	Major vegetation patterns in Michigan; post-lumbering changes and modern challenges; early agriculture	All of the pages here: http://www.geo.msu.edu/geogmich/part-two-F.html BOOK chapter 21
Apr 22	Agriculture: early and later crop rotations; dairying and corn belt agriculture	http://www.geo.msu.edu/geogmich/agriculture_in_mi.html http://www.geo.msu.edu/geogmich/settle.html Don’t ignore the many fine pages here: http://www.geo.msu.edu/geogmich/part-five-C.html BOOK chapter 36
Apr 27	Agriculture: specialty crops: dry beans, sugar beets, potatoes, mint	Don’t ignore the many fine pages here: http://www.geo.msu.edu/geogmich/part-five-C.html BOOK chapter 37
Apr 29	Michigan climate and weather: factors and controls; Michigan’s fruit belt and the “lake effect”	Lake effect and climate pages are here: http://www.geo.msu.edu/geogmich/part-two-H.html Fruit pages are here: http://www.geo.msu.edu/geogmich/part-five-C.html BOOK chapters 19 and 38

Monday, May 4 FINAL EXAM 8:00-10:00 pm 118 Psychology Building