

COURSE : ISC 280 Living on Earth CREDIT HOURS : 4

TIME : Lecture Tuesdays and Thursdays 8 - 9:15 am. PLACE : Room 374 Science

Lab Section 201 Mondays 8 – 950 am. Room 200 Science

Lab Section 202 Mondays 10 – 1150 am. Room 200 Science

Lab Section 203 Mondays 1 – 250 am. Room 200 Science

Pre-requisite : MTH 121 or 121B or 123 or 127 or 130 or 130E or 203 or 229

Spring, 2009 Instructor: Samuel T. Colvin, office - G-31-G, Morrow Library, (304) 696-5432  
colvin8@marshall.edu

Office hours : Mondays noon to 1 pm., Tuesdays and Thursdays 10:45 am. to 2 pm., and

BY APPOINTMENT ONLY Tuesdays and Thursdays 2 to 3 pm.

Office hours are subject to change by class announcements and / or posted notice on office door.

I AM NOT ON CAMPUS ON WEDNESDAYS, FRIDAYS, SATURDAYS OR SUNDAYS.

MARSHALL PLAN - Upon completion of the ISC component of the Marshall Plan, students will:

1. understand and apply the processes of scientific investigation to gather information and an understanding of the natural universe.
2. know how to distinguish the differences between science and pseudoscience.
3. gather, analyze, and draw conclusions based on valid interpret of data.
4. possess and exhibit improved skills and competencies in research, writing, and oral presentations.

**Course Learning Objectives:**

1. learn to think critically
2. understand the scientific method and learn the process the processes of scientific investigation
3. know how to distinguish the differences between science and pseudoscience
4. gather and analyze data to draw conclusions based on valid interpretation of results
5. garner skills and competencies in research, writing, and presentation
6. acquire knowledge and gain an understanding of natural science

Assessment Tool*		Learning Objective Assessed**					
		1.	2.	3.	4.	5.	6.
A.	Pre test/post test on the scientific process	✓					
	<u>Portfolio Assignment I. Lab Report</u>	✓	✓	✓	✓	✓	✓

B.	on the Process of Science. Students will make observations, develop hypotheses, design experiments, collect data, and draw conclusions. Submit as a Word document.						
C.	<u>Portfolio Assignment II.</u> Comparative critique of two papers one chosen as an example of science and one as an example of pseudo science. Minimum 3 pages, double spaced submitted as a Word document.	✓	✓		✓	✓	✓
D.	<u>Portfolio Assignment III.</u> Provide a synthesis based on three or more reference sources emphasizing scientific findings and the strength of those findings. Minimum, 3 pages double spaced submitted as a Word document.	✓	✓		✓	✓	✓
E.	<u>Portfolio Assignment IV —</u> Presentation or Report Summarizing an Area of Scientific Research. The emphasis is on presentation of scientific information as a stand-alone, kiosk-like presentation or report. Sound argument, clarity, and accuracy of conclusions are emphasized. Presentation in a format that allows wide distribution; PowerPoint required.	✓	✓		✓	✓	✓

**Concepts:** 1. Scientific Method 2. False/Real science 3. Atoms/Molecules

4. Organisms 5. Biological Community 6. Matter/Energy 7. Systems 8. Ecosystems

9. Earth/soil/land 10. Water 11. Air/Weather/Climate

**Environmental Issues:** 1. Population 2. Biodiversity 3. Food/Hunger 4. Health 5. Energy

6. Air Pollution 7. Climate Change 8. Water Pollution 9. Solid Waste/Recycling/Compost

10. Sustainability 11. Local issues

**Course Conduct:** Students will work in groups and/or individually to examine the world's current environmental status. Students will gather information from various sources including the Internet, books, and other scientific references. Course materials will be mainly handouts. There is no required text or recommended reading outside of class.

The instructor will be responsible to: 1. Introduce concepts and issues and 2. Model a scientific approach. 3. Evaluate student submissions.

Students will be responsible to: 1. Conduct group activities 2. Submit individual assignments and 3. Take tests.

#### POLICIES:

Accommodations for learning disabilities will be arranged when an official form is received. For further information, log onto <http://www.marshall.edu/disabled>.

Students who consistently (2 or more times) come to class late will be subject to a reduction in points not to exceed a one letter grade reduction.

Absences will be excused only with written excuses in accordance with University attendance policy. Students with excused absences are responsible to make up work no later than seven (7) days after returning to class. While not recorded, attendance in lecture is highly recommended.

Plagiarism or cheating will result in no credit for that activity and may result in further University sanctions.

Submission deadlines are Thursday by 10 pm. to MU Online as designated by the underlined items on the dates on the course calendar. Late submissions to MU Online will be accepted with penalty until the cutoff, the next Thursday at 10 pm. After the cutoff, MU Online will not allow submissions.

Work turned in late or not in the prescribed format or not under the right assignment will be penalized, or at the discretion of the instructor, not accepted for grading. MU Online will be the only acceptable vehicle for submission of work unless the instructor announces a different vehicle.

No work received after the final will be graded. Not submitting work may lead to receipt of an incomplete or failing grade. Submissions will not be returned. Please keep copies of all work submitted.

Assignments I, II, III and IV are College of Science requirements, must pertain to the topic and references chosen by the student, and must be submitted to MU Online to successfully complete the course. If assignments are not submitted, the penalty will, at the discretion of the instructor, be (1) a reduction in points equaling at least one letter grade reduction for each assignment not submitted, (2) an incomplete for the course or (3) a failing grade.

Grades will be reported on MU Online allowing students to determine their grade status anytime, but especially prior to course withdrawal deadlines and prior to the final. Assignments will be marked, graded and comments (if any) returned through MU Online within two weeks after the due date.

There is no extra credit, re-testing or scaling.

The instructor may, at his discretion, consider awarding extra points to a student less than five (actual, not percentage) points away from the next grade level provided that student has completed all assignments, activities and labs in a timely fashion.

Questions from students about the class may be asked during class or sent by e-mail to [colvin8@marshall.edu](mailto:colvin8@marshall.edu).

Due dates and assignments are subject to change. The final word on changes will be announcements in class. Due dates will only be moved back, not forward.

The University policies related to nondiscrimination, computing services acceptable use (<http://www.marshall.edu/ucs/CS/acceptuse.asp>), and inclement weather ([http://www.marshall.edu/www/policy/policy\\_07.html](http://www.marshall.edu/www/policy/policy_07.html)) will be followed.

**Course Evaluation:** Students will be evaluated through :

- (1) laboratory activities maximum 350 points (maximum 25 points each lab);
- (2) a test (Exam 1) covering concepts and environmental issues maximum 100 points;
- (3) a test (Exam 2) covering student oral presentations and labs maximum 100 points;
- (4) selected topic and references (11 total – 10 real science and 1 false science) for Assignments 1 – 4. Submitted to MU Online as a Word Document. maximum 35 points; \*\*
- (5) Assignment I - design an experiment - scientific lab report (Students will make observations, develop hypotheses, design experiments, collect data and draw conclusions. Submitted as a Word document to MU Online. maximum 100 points; \*\*
- (6) Assignment II - comparative critique of two papers (one chosen as an example of science and the other as an example of pseudo (false) science. Minimum 3 pages, double spaced, submitted as a Word document to MU Online. maximum 100 points; \*\*
- (7) Assignment III - written synthesis (report) based on 3 or more references emphasizing scientific findings and the strength of those findings. Minimum 3 pages, double spaced, submitted as a Word document to MU Online. maximum 100 points; \*\*
- (8) Assignment IV - oral presentation summarizing scientific research based on a minimum of 3 additional scientific references. Minimum 10 minutes, submitted as Power Point to MU Online. maximum 100 points; \*\*
- (9) Acknowledgements of receipt and understanding of: a. syllabus and explanation of assignments; b. grade status prior to course drop deadline; c. grade status prior to final. Worth 5 points each for a maximum total of 15 points.

A total of 1,000 points is possible.

Grades: A 90-100% 900 to 1,000   B 80-89% 800 to 899   C 70-79% 700 to 799

D 60-69% 600 to 699   F < 60% 0 to 599

\*\* Assignments I, II, III and IV are College of Science requirements, must pertain to the topic and references chosen by the student, and must be submitted to MU Online to successfully complete the course.

## COURSE OUTLINE AND SCHEDULE

PLEASE NOTE: Submission deadlines are Thursday by 10 pm. to MU Online as designated by the underlined items. Late submissions to MU Online will be accepted with penalty until the cutoff, the next Thursday at 10 pm. After the cutoff, MU Online will not allow submissions.

***Tests are in bold and italicized.***

Dates	Lectures
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Day 1 1/13	syllabus, get acquainted, environmental scientist
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Day 2 1/15	Explanation of assignments <u>Acknowledge syllabus and assignments.</u>
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Day 3 1/20	atoms / molecules / compounds / cells / tissues / organs / systems
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Day 4 1/22	matter / energy / life / organisms / species / population <u>Topic and references for</u>
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Assignments I, II, III and IV due.

Day 5 1/27	biological communities / ecosystems
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Day 6 1/29	biomes
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Day 7 2/3	earth and its crust, soil, land use
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Day 8 2/5	<u>Assignment I - Design of Experiment due.</u>
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Day 9 2/10	water
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Day 10 2/12	air / weather / climate
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Day 11 2/17	population/ biodiversity
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Day 12 2/19	<u>Assignment II - Critique due.</u>
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Day 13 2/24	environmental health, energy management
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Day 14 2/26	air pollution / treatment, global climate change
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Day 15 3/3	water pollution / treatment
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Day 16 3/5	<u>Assignment III – Synthesis due.</u>
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Day 17 3/10	solid waste / recycling / compost
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Day 18 3/12	sustainability <u>Acknowledge grade status prior to course drop deadline.</u>
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Day 19 3/17	local environmental issues Review for Exam 1.
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Day 20 3/19	<b><i>Test on concepts and environmental issues (Exam1).</i></b>
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Day 21 3/31 Ten-minute student presentations begin per schedule TBA.

Day 22 4/2 Presentations continue. Assignment IV – Power Point submitted to MU Online.

Day 23 4/7 Presentations continue.

Day 24 4/9 Presentations continue.

Day 25 4/14 Presentations continue.

Day 26 4/16 Presentations continue.

Day 27 4/21 Presentations continue.

Day 28 4/23 Presentations continue. Acknowledge grade status prior to final.

Day 29 4/28 Presentations continue.

Day 30 4/30 Presentations continue. Review for Exam 2.

5/7 Thursday 8 – 10 am. ***Test on Student Oral Presentations and Labs (Exam 2)***

LABS - Lab schedule subject to change due to weather and other factors. The labs are being redesigned after recent instructional training. Here are examples of topics which may be covered in labs:

Assessment / lab safety / environment; scientific method; plants and trees; rocks and minerals; land use; planning Earth Day; energy; environmental problem solving; CO 2; environmental indicators; sustainability; compost / garbage survey; reduction strategy; ecotourism; stream assessment; campus observation; issues, agencies, groups; risk assessment.

\* = Lab activity to be turned in.

#### LAB SCHEDULE

WEEK	Monday	
1	1/12	Lab 1 *
2	1/19	Holiday
3	1/26	Lab 2 *
4	2/2	Lab 3 *
5	2/9	Lab 4 *
6	2/16	Lab 5 *
7	2/23	Lab 6 *
8	3/2	Lab 7 *
9	3/9	Lab 8 *
10	3/16	Lab 9 *
11	3/30	Lab 10 *
12	4/6	Lab 11 *
13	4/13	Lab 12 *
14	4/20	Lab 13 *
15	4/27	Lab 14 *