COURSE: Integrated Science and Technology (IST) 320 The Nature of Environmental Problems

ONLINE CREDIT HOURS: 3 Spring , 2012

No prerequisites required.

Instructor: Samuel T. Colvin, office – 213 Prichard

E- mail: colvin8@marshall.edu This is the only e-mail address to which I respond. Please do not send e-mails to any other address or through forums.

Phone: (304) 696-5432 Phone messages left should automatically be forwarded to my e-mail.

I strive to respond to e-mails and/or phone messages within 24 hours of receipt.

Regular office hours : Tuesdays and Thursdays 11 a.m. – 2 p.m.

OTHER OFFICE HOURS BY ADVANCE APPOINTMENT ONLY

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

BIOGRAPHICAL SKETCH

Sam Colvin received a bachelor's degree and a master's degree from WVU. He has taken postgraduate courses at Marshall.

Sam has worked on environmental issues since the first Earth Day in 1970. He has been employed at the city, county and state levels in West Virginia. He was an Extension Agent for two years and the Community Development Director of Huntington for three years. He served as Executive Director of the WV Resource Recovery-Solid Waste Disposal Authority for eleven years. He was a market development representative for a major environmental company for one year. He has operated an environmental consulting business since 1990.

Sam has been a member of the WV Solid Waste Management Board and the WV Water Quality Advisory Committee. He served two years as Executive Director of the Ohio River Basin Consortium for Research and Education.

Sam's major environmental emphasis is solid waste, including recycling and composting. He is a certified yard waste facility operator and has received the National Backyard Compost training and the Compost Facility Best Management Practices training.

Sam has taught at Marshall since the spring of 2000. He has taught First Year Seminar 100, Integrated Science (ISC) Living on Earth, Integrated Science and Technology (IST) 111 Living Systems, IST 320 Nature of Environmental Problems, and IST 321 Resolution of Environmental Problems. He has been involved in two Campus Compact service learning grants.
Sam has completed Sustainability Awareness, Pollution Prevention and Environmental Management System training sponsored by WV Department of Environmental Protection, the National Pollution Prevention Roundtable and Bridgemont Community & Technical College.

His current research and service projects include (1) Fourpole Creek assessment and improvement and (2) campus and community waste reduction, recycling and compost programs.

Sam lives in rural Wayne County, WV with his wife, Prudence. Their two sons, Andrew and Samuel, are college students and aspiring Army officers.

COURSE DESCRIPTION: “The effects of human activity on ecological, political and cultural systems are examined. Particular attention is given to present human population growth, industrial activities, and energy availability.” – MU Undergraduate Catalog

COURSE MATERIAL AND TEXT: Information will be obtained from the Internet and other sources. Recommended resources for each unit are listed below. There is no required text.

COURSE CONDUCT: Students are expected to use the recommended references and other sources to write position papers answering the question at the end of each of the ten units. The instructor will grade the submitted papers and provide individual feedback as appropriate. Online discussion periods will be available for each unit after the papers have been graded.

COURSE OUTCOME : Upon completion of the class, students should be able to follow a scientific process to address environmental problems by (1) recognizing the size and scope of the problem, (2) evaluating proposed solutions using objective criteria, and (3) recommending appropriate action to improve the current status.

POLICIES:

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

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

Work 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. PLEASE DO NOT SEND SUBMISSIONS BY E-MAIL.

Submission deadlines to MU Online are detailed below and will be enforced. Late submissions to MU Online will be accepted with penalty until the cutoff. After the cutoff, MU Online will not allow submissions. Submissions will not be returned. Please keep copies of all work submitted.

No work received after the last exam will be graded. The course officially closes at the end of the last exam.

Grades will be reported on MU Online allowing students to determine their grade status anytime, but especially prior to course withdrawal deadlines and end of the class. Assignments will be marked, graded and comments (if any) returned through MU Online within two weeks after the due date. It is the student’s responsibility to check grades and comments (if any) to assure the proper receipt of and credit for assignments.

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

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 in a timely fashion.

Questions from students about the class may be sent by e-mail to colvin8@marshall.edu. I strive to respond to e-mails within 24 hours.

Due dates and assignments are subject to change. The final word on changes will be announcements by e-mail or online postings. 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/accptuse.asp), and inclement weather (http://www.marshall.edu/www/policy/policy_07.html) will be followed.

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Below is the current University policy related to the granting of incompletes for courses. This policy will be strictly followed.

"Incomplete: The grade of *I* (incomplete) indicates that the student has completed three-quarters of the course, but cannot complete the course for a reason that accords with the university excused-absence policy. Students must be in good standing in the class prior to requesting an incomplete. The course instructor decides whether or not an incomplete will be granted and specifies in writing what work the student must complete to fulfill the course requirements. The student has until the end of the next fall or spring semester from the date of receipt of the incomplete grade in which to complete the course, or the instructor may establish an earlier deadline. If special circumstances exist, which prevent the student from completing the course in the prescribed time, the incomplete may be extended with approval of the instructor, the instructor's chair or division head, and the instructor's dean. If the student satisfactorily completes the course in the prescribed time he/she will receive a letter grade. If the student fails to complete the course requirements during the stipulated time, the grade of *I* changes to a grade of *F."*

- *The Greenbook, Marshall University*

University Calendar:

January 9, Monday
First Day of Classes

January 9, Monday -- January 13, Friday
Late Registration and Schedule Adjustment - (Add/Drop)

January 13, Friday
Last Day to Add Classes - (Withdrawals Only After This Date)

January 16, Monday
Martin Luther King, Jr. Holiday - (University Closed)

January 17, Tuesday
"W" Withdrawal Period Begins

March 5, Monday, Noon
Deadline for Submitting Freshmen Mid Term Grades

March 16, Friday
Last Day to Drop a Full Semester Individual Course

March 18, Sunday -- March 25, Sunday
Spring Break - (Classes Dismissed)

March 19, Monday -- April 27, Friday
Complete Withdrawals Only

March 26, Monday
Classes Resume

April 4, Wednesday
Assessment Day - Classes Cancelled for University-Wide Assessment Activities.

April 23, Monday -- April 27, Friday
Dead Week

April 27, Friday
Last Class Day and Last Day to Completely Withdraw For Spring Semester

April 30, Monday
Exam Day

May 1, Tuesday
Exam Day

May 2, Wednesday
Study Day

May 3, Thursday
Exam Day

May 4, Friday
Exam Day

May 5, Saturday
175th Commencement Exercises

May 8, Tuesday, Noon
Deadline for Submitting Final Set of Grades

Course Evaluation: Students will be evaluated on:

Position papers will be written on each of the ten units (scientific evidence, water, air, land, energy, environmental health, population, biodiversity, waste, and sustainability) 100 points each maximum. 1000 total points are possible.

Each paper must be a minimum of 3 pages of text, double spaced, plus a listing of works cited. The papers must be submitted to MU Online in Microsoft Word format. Each paper must address the question associated with the related unit. Positions adopted by the students must be supported by scientific evidence. The papers should be prepared from the point of view of a consultant briefing a client or an agency worker reporting to a supervisor. The papers are not editorials or opinion pieces.

Each paper will be graded on content, structure, completeness, references used, and writing style.

Grades : A 90-100% 900 to 1000; B 80-89% 800 to 899; C 70-79% 700 to 799; D 60-69% 600 to 699; F < 60% 0 to 599

Course Content:

Unit 1 – Scientific Evidence

Recommended Resources:

Ben Goldacre: Battling Bad Science, www.ted.com

Question: The human population in Jamestown, the first permanent English colony in the New World, faced significant environmental challenges to survive. In the years between 1607 and 1625, it is estimated that 4,800 of the 6,000 settlers died. Find scientific evidence to determine which of the following possible causes contributed to the large number of deaths: starvation, disease, polluted water, drought. In your written report, summarize the scientific evidence you found to be reliable, discuss why that evidence was convincing to you and conclude which cause(s) was responsible for most of the deaths.

Unit 1 Paper due to MU Online Tuesday, 1/17/12 by 11:59 p.m.

Online discussion on Unit 1 available from Monday, 1/23/12 – Thursday, 1/26/12

Unit 2 – Water

Recommended Resources:

Rob Harmon: How the market can keep the streams flowing, www.ted.com

Anupan Mishra: The ancient ingenuity of water harvesting, www.ted.com

Chapter 2 Stormwater Management

www.ksre.ksu.edu/library/ageng2/h_a_syst/homeasst.pdf

Chapter 3 Drinking Water Well Management

www.ksre.ksu.edu/library/ageng2/h_a_syst/homeasst.pdf

Chapter 4 Household Wastewater

www.ksre.ksu.edu/library/ageng2/h_a_syst/homeasst.pdf

Question: Which is the more serious problem for the world today – water quality or water quantity?

Unit 2 Paper due to MU Online Tuesday, 1/31/12 by 11:59 p.m.

Online discussion on Unit 2 available from Monday, 2/6/12 – Thursday, 2/9/12

Unit 3 – Air

Recommended Resources:

David Keith's unusual climate change idea, www.ted.com

Chapter 9 Indoor Air Quality

www.ksre.ksu.edu/library/ageng2/h_a_syst/homeasst.pdf

Question: Which one of the following should be controlled more to reduce greenhouses gases – carbon dioxide, methane or soot (particulate matter)?

Unit 3 Paper due to MU Online Tuesday, 2/7/12 by 11:59 p.m.

Online discussion on Unit 3 available from Monday, 2/13/12 – Thursday, 2/16/12

Unit 4 – Land

Recommended Resources:

Carolyn Steel: How food shapes our cities, www.ted.com

Chapter 1 Site Assessment www.ksre.ksu.edu/library/ageng2/h_a_syst/homeasst.pdf

Chapter 7 Yard and Garden Care

www.ksre.ksu.edu/library/ageng2/h_a_syst/homeasst.pdf

Question: Which of the following is the most important problem related to land – soil erosion and depletion, deforestation or mineral extraction?

Unit 4 Paper due to MU Online Tuesday, 2/14/12 by 11:59 p.m.

Online discussion on Unit 4 available from Monday, 2/27/12 – Thursday, 3/1/12

Unit 5 – Energy

Recommended Resources:

Juan Enriquez wants to grow energy, www.ted.com

Chapter 8 Liquid Fuels

www.ksre.ksu.edu/library/ageng2/h_a_syst/homeasst.pdf

Chapter 10 Heating and Cooling

www.ksre.ksu.edu/library/ageng2/h_a_syst/homeasst.pdf

Question: Which of the following would you recommend as the most effective way to increase the United States energy supply – domestic oil, clean coal, ethanol, natural gas, solar, wind, geothermal, biomass or nuclear energy?

Unit 5 Paper due to MU Online Tuesday, 2/28/12 by 11:59 p.m.

Online discussion on Unit 5 available from Monday, 3/5/12 – Thursday, 3/8/12

Unit 6 – Environmental Health

Recommended Resources:

Paul Stamets on six ways mushrooms can save the world, www.ted.com

Chapter 5 Managing Hazardous Household Products

www.ksre.ksu.edu/library/ageng2/h_a_syst/homeasst.pdf

Chapter 6 Lead In and Around Home

www.ksre.ksu.edu/library/ageng2/h_a_syst/homeasst.pdf

Question: Which of the following is the biggest threat to human health – radon, mold, or secondhand cigarette smoke?

Unit 6 Paper due to MU Online Tuesday, 3/6/12 by 11:59 p.m.

Online discussion on Unit 6 available from Monday, 3/12/12 – Thursday, 3/15/12

Unit 7 – Population

Recommended Resources:

Hans Rosling shows the best stats, www.ted.com

Hans Rosling on global population growth, www.ted.com

Question: Should human population growth be controlled? Whether you personally favor population control or not, what control method would be most effective?

Unit 7 Paper due to MU Online Tuesday, 3/13/12 by 11:59 p.m.

Online discussion on Unit 7 available from Monday, 4/2/12 – Thursday, 4/5/12

Unit 8 – Biodiversity

Recommended Resources:

E. O. Wilson on saving life on Earth, www.ted.com

Jason Clay: How big brands can help save biodiversity, www.ted.com

Question: Select a non-native species which has invaded a geographic area of interest to you. Describe the extent of the invasion and detail a plan for permanently removing that species from the selected area.

Unit 8 Paper due to MU Online Tuesday, 4/3/12 by 11:59 p.m.

Online discussion on Unit 8 available from Monday, 4/9/12 – Thursday, 4/12/12

Unit 9 – Waste

Recommended Resources:

Eben Bayer: Are mushrooms the new plastic?, www.ted.com

Chapter 11 Managing Household Waste

www.ksre.ksu.edu/library/ageng2/h_a_syst/homeasst.pdf

Question: Select a local area – town, city or county which is of interest to you. Detail the present level of recycling in that area and develop a plan to increase recycling in that area.

Unit 9 Paper due to MU Online Tuesday, 4/10/12 by 11:59 p.m.

Online discussion on Unit 9 available from Monday, 4/16/12 – Thursday, 4/19/12

Unit 10 – Sustainability

Recommended Resources:

Michael Pawlyn: Using nature's genius in architecture, www.ted.com

Arthur Potts Dawson: A vision for sustainable restaurants, www.ted.com

Question: What sustainability practices, if any, have you already adopted? What evidence convinced you to start the practice(s)? What other practices do you plan to adopt in the near future? What evidence are considering before deciding to implement that practice?

Unit 10 Paper due to MU Online Tuesday, 4/17/12 by 11:59 p.m.

Online discussion on Unit 1 available from Monday, 4/23/12 – Thursday, 4/26/12