

# ***Samples of How to Incorporate Newly Approved ISLOs into Syllabi: CHE 151 and ENV 121***

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This document illustrates the changes made (with comments/motivation) to my CHE 151 and ENV 121 syllabi to incorporate the recently approved ISLOs. It is meant to provide just two examples of how this has been done, and by no means suggests that either of these are the best way to incorporate ISLOs into a course syllabus. The methods used to embed the ISLOs into these course syllabi are very different reflecting the varied types of content and assessment strategies used in each. (The Chemistry course is heavily math-based and the Coral Reef Ecology relies mostly on written analysis and group work.) If any faculty member has developed another method to do so, and is willing to share it with the entire faculty as another possible template, please pass it along to the Gen Ed committee and we will make it readily available. Since as of Fall 2014 all syllabi of Gen Ed courses will have to reflect the embedded ISLOs (per numerous FSA votes), I'm certain that as many templates as possible would be appreciated by faculty teaching Gen Ed core courses to assist in this transition from Intensive Values to ISLOs.

## ***Changes/Additions to the CHE 151 Syllabus:***

***The last sentence was added to the course description (with icons):***

This course supports the student development of Written and Oral Communication , Critical Thinking , and Quantitative Literacy .

***New section in the CHE 151 syllabus added:***

*Comments: This section was added to explain ISLOs to students in general, give them the "Course Outcomes" approved by GERC and the Curriculum Committee word for word, and then provide specifically what they'll be expected to do in my particular section of CHE 151 to meet each ISLO. The motivation for adding a new section was that it just seemed easier to write in and easier for someone to evaluate the syllabus rather than having to search for the assignments that support each ISLO buried in with the rest of the content-related assignments. I also thought it easier for students to understand if I eliminated the word "artifacts" as used on the GERC application form, refer to them as "assignments", and combine them with the Learning Activities into one heading.*

***Institutional Student Learning Outcomes (ISLOs):*** In addition to discipline-associated knowledge acquired at the college as a foundation for continued study and/or practical application, the MCC community has

identified six Institutional Student Learning Outcomes, or ISLOs, as the skills and abilities that are essential to our students' learning and development. MCC provides a wide range of curricular and co-curricular learning opportunities for students to develop and practice them and student achievement of these ISLOs are assessed on an ongoing basis to ensure that our graduates are well-prepared for their future academic and career endeavors. Below are listed the three ISLOs supported in this (and all other sections of CHE 151), along with course outcomes and specific learning activities and types of assignments you can expect to engage in this semester to support the development of each ISLO.

### *Written and Oral Communication*

#### Course Outcomes:

- Students will accurately document scientific observations in a laboratory setting.
- Students will compose a formal lab report in a scientifically acceptable format.
- Student will orally present, discuss and answer questions with peers on laboratory results and/or a research project.

#### Relevant Assignments and Learning Activities:

During this semester you can expect to conduct labs that require documentation of scientific observations, write at least one formal laboratory report that follows a scientifically acceptable format, and complete at least one assignment in which you will be required to provide a video recording of yourself reporting on or explaining a topic of mutual interest in the field of chemistry.

### Critical Thinking

#### Course Outcomes:

- Students will be able to utilize the scientific method in solving problems.
- Students will be able to distinguish the difference between fact and theory (interpretation) as it relates to science and chemistry in particular.
- Students will be able to gather information, process the data and interpret the findings.

#### Relevant Assignments and Learning Activities:

During this semester you can expect to conduct laboratory experiments that require you to process and interpret data that you have acquired, write at least one formal laboratory report that includes a results and discussion section, and routinely answer homework and exam questions that require you to justify your answer.

### Quantitative Literacy

#### Course Outcomes:

- Students will be able to solve chemical calculations.
- Students will be able to accurately record and process data from a laboratory experiment.

Students will be able to interpret data on graphs and tables to understand chemical concepts.

**Relevant Assignments and Learning Activities:**

During this semester you can expect to conduct labs and write at least one formal lab report that require data acquisition and numerical or statistical analysis, and complete *many* homework sets and exam problems that require mathematical calculations.

***Changes/Additions to the ENV 121 Syllabus:***

***The last sentence was added to the course description (with icons):***

This course supports student development of Social Responsibility , Multicultural /Global Literacy , Critical Thinking , Quantitative Literacy , and Written and Oral Communication .

*Comments: Unlike the CHE 151 syllabus, the relevant course outcomes, assignments, and learning activities were not split into a separate section. Rather, they were defined and their relevance explained in the new added paragraph below, then identified by placing the appropriate icons in the learning outcomes and course outline sections of the existing syllabus. Please note that there are also many course-specific outcomes and activities not relevant to an ISLO.*

***Institutional Student Learning Outcomes (ISLOs):*** In addition to discipline-associated knowledge acquired at the college as a foundation for continued study and/or practical application, the MCC community has identified six Institutional Student Learning Outcomes, or ISLOs, as the skills and abilities that are essential to our students' learning and development. MCC provides a wide range of curricular and co-curricular learning opportunities for students to develop and practice them and student achievement of these ISLOs are assessed on an ongoing basis to ensure that our graduates are well prepared for their future academic and career endeavors. Below are listed the five ISLOs supported in this course, along with the icons used to identify within the remainder of this syllabus specific learning outcomes, activities and types of assignments that you can expect to engage in this semester to support the development of each ISLO.

 *Written and Oral Communication*

 *Critical Thinking*

 *Quantitative Literacy*

 *Social Responsibility*

 *Multicultural /Global Literacy*

***Student Learning Outcomes:*** After completing this course, students will be able to:

- Demonstrate through class discussion and the creation of written documents (that employ Standard English spelling, grammar, punctuation and capitalization) a thorough understanding of basic ecological concepts, such as biodiversity, ecosystem productivity, and sustainability.  
- Demonstrate through class discussion and the creation of written documents (that employ Standard English spelling, grammar, punctuation and capitalization) a thorough understanding of the balances that exist in natural ecosystems that form the foundation of sustainability on our planet.  
- Demonstrate through class discussion and the creation of written documents (that employ Standard English spelling, grammar, punctuation and capitalization) a thorough understanding of the ecological impact that industry, society, and individuals have on coral reef ecosystems.  
- Via the development of oral communication skills through live debate, demonstrate an understanding of the energy needs of humanity, the economic and ecological pros and cons of current and future energy sources, and the effects of each type of energy source on the health of the world's coral reefs. 
- Analyze the economic and ecological pros and cons of current human activities (such as energy use, travel and tourism, agriculture, fishing, industrial processes, mining, politics) on the health of the world's coral reefs.
- Define and discuss the concept of Environmental Justice. 
- Analyze the pros and cons of human cultural and/or religious practices and values in numerous global locations near coral reefs (such as local cultural relationships to the ocean, attitudes of the relationship between humankind and nature, the role of natural resources in various cultural and religious views) on the health of the world's coral reefs – both local to each culture and global in scope.  
- Analyze and critique the effects of varied worldwide political and economic systems of countries near reef ecosystems, and how these different systems affect local and global reef health. 
- Interpret data on graphs and tables to explain ecological and economic concepts. 
- Articulate an environmental worldview that reflects their individual values and underlies how they make ethical decisions. 
- Discern and examine the effects of their individual decisions and actions on the environment. 
- Communicate more confidently and articulately a position on environmental issues by engaging in informed discussion by substantiating opinions with quantitative data.  
- Perceive themselves as effective, participating members of their school, community, and world via civic engagement. 

- Demonstrate through class discussion and written assignments a thorough understanding of exponential growth as compared to linear growth, and articulate its relevance in relation to human population. 
- Demonstrate knowledge of the vocabulary of coral reef ecosystems, basic coral biology, taxonomy of reef organisms, and evidence of stress to reefs through discussions, quizzes, and assignments.
- Compare and contrast human and natural causes of depletion or extinction of species as well as disruption of entire ecosystems such as the coral reefs. 
- Utilize research and critical analysis of scientific data to demonstrate how coral reefs are widely accepted as indicators of global environmental health. 
- Define sustainability and explain the major ecological principles that underlie balance between coral reef, sea-grass bed, and mangrove ecosystems. 
- Describe the major atmospheric environmental problem of climate change, the potential consequences of this problem on reef ecosystems if not curbed, evidence for its cause, and the political and scientific challenges to reversing it.
- State examples illustrating the economic and cultural importance of coral reefs on nearby tropical nations and communities. 
- State examples of what individuals can do to help preserve resources and alleviate environmental problems.

*Course Outline:*

<u>Week</u>	<u>Topics and Related Chapters in the Miller Text</u>
1	Course Overview and Expectations Discussion: Why Study Coral Reefs? Overview of Coral Reef Ecology and Conservation, Basic Coral Biology (Multimedia and Handouts)
2	The Economic and Cultural Importance of Coral Reefs (Multimedia)  Example of a Coral Reef Community: Introduction to Belize  Distribution/Discussion of Assignment #1: Individual Student In-class Presentations  "Exponential Growth" Exercise (Handout) 
3	Begin Individual Student In-class Presentations  Environmental Problems, Population, Consumption, and Sustainability (Chapter 1) 
4	Individual Student In-class Presentations Continued  Environmental Problems, Population, Consumption, and Sustainability (Chapter 1) Continued

- "Resources" Exercise (Handout) 
- Ecological Footprint (<http://www.myfootprint.org/en/>) 
- 5 Individual Student In-class Presentations Continued   
 Matter, Energy, and Systems (Chapter 2)  
 Energy Flow and Matter Cycling in Ecosystems  
 "Coral Reef Ecosystem Connectivity" Exercise (Handout)  
- 6 Individual Student In-class Presentations Continued   
 Biodiversity and Evolution (Chapter 3)  
 Natural Selection and Speciation (Chapter 4 Sections 4.1 through 4.4)
- 7 Individual Student In-class Presentations Continued   
 Finish Discussion on Biodiversity and Evolution  
 Community Ecology (Handout)  
 Group Work/Student Led Discussion on: "Death and Resurrection of  
 Caribbean Coral Reefs: a Palaeoecological Perspective" (Handout) 
- 8 Anthropogenic and Natural Stresses to Reefs: A Closer Look I  
 Point and Non-Point Sources of Water Pollution (Chapter 8) and Air  
 Pollution (Chapter 12)  
 Health of the Oceans and Computer Modeling in Climate Science (Multimedia)  
 Sustaining Marine Ecosystems (Sections 6.5 and 6.6)
- Spring Break after week 8 (assuming no Friday snow days prior to this week) = March 21
- 9 Anthropogenic and Natural Stresses to Reefs: A Closer Look II  
 Climate Change and Ocean Warming (Handouts, Multimedia)  
 Group Work/Student Led Discussion on: "IPCC Climate Change Working  
 Group I Report: The Physical Science Basis" (Handout)    
 Ocean Acidification (Chemistry Demonstration)  
 Coral Reefs as Indicators of Global Environmental Health   
 "Risk Assessment" Exercise 
- 10 Anthropogenic and Natural Stresses to Reefs: A Closer Look III  
 Effects of Tourism, Fishing Practices, and Coastal Land Use Management  
 on Reef Ecosystems (Handouts)   
 Coordinated Multimedia (Air, Land, and Water) Environmental  
 Management, Belize Coastal Zone Management (Handout)   
 Hol Chan Marine Reserve, San Pedro, Belize (Handout/Web Resources)   
 Development in San Pedro, Belize (2008 MCC Belize Fellowship Group Dvd) 
- 11 Preparation for the Energy Debates: Nonrenewable and Renewable Energy

Resources (Chapters 9 and 10)   

- 12 In-class "Energy Debates", with prizes for the winning team!    
- 13 Environmental Worldviews Relative to Global Economics and Politics  
(Chapter 14)    
3rd Generation Economic Approach to Reef Conservation (Handout)  
Distribution of Capstone Assignment   
14. Guest Speaker: MCC Economics Professor Rob Kaulfuss will discuss the complex relationships between Economics, Energy, and the Environment. Professor Kaulfuss is also the founder and editor of the influential blog [beyondeconomics.org](http://beyondeconomics.org)  
- 15 The Reef Check Global Coral Reef Health Study (Reefcheck.org, 2007  
MCC Belize Fellowship Group Dvd,  
[Belizereef2011.wordpress.org](http://Belizereef2011.wordpress.org), [Belizereef2012.wordpress.org](http://Belizereef2012.wordpress.org))   
Group Work/Student Led Discussion on: "Coral Reef Coda" - (Handout)  
Belizean History and Culture (Handouts and Web Resources)   
Course Wrap-Up and Bibliography:  
Overview: Debate, Consensus, and Speculation on the Future of  
Coral Reefs  
**Capstone Assignment Due for Full Credit** (Half Credit by Monday 5/12)
- 5/15 Final Exam Scheduled Time: 3:30 - 5:30 PM (Thursday May 15th)