

# An Open Educational Resource (OER) Learning Management System for Sustainability and Environment Studies

Field of Digital Media Design

Masters of Liberal Arts Degree

The screenshot displays the user interface of the 'Sustainability and Environmental Studies' Open Educational Resources Learning Center. At the top, a navigation bar includes a logo and links for Home, About, Modules, Resources, Contact Us, and Preview Survey. The main header features the course title in red and the center's name below it. The content area is titled 'Biodiversity At Risk: A Global Perspective'. On the left, a sidebar menu lists the course structure, with '3.6 Reflection Questions' highlighted. The main content area contains two reflection questions. On the right, there is a search bar and a login section with fields for Username and Password, a Log In button, and a link for Forgot Password?

Home About Modules Resources Contact Us Preview Survey

## Sustainability and Environmental Studies

Open Educational Resources Learning Center

### Biodiversity At Risk: A Global Perspective

Search ... Search

**Login**

Username

Password

Log In

Forgot Password?

- Introduction
- 1. Significance and Values
- 2. Climate Change Impacts
- 3. Invasive Species Impacts
  - 3.1 Lesson Unit 1
  - 3.2 Lesson Unit 2
  - 3.3 Lesson Unit 3
  - 3.4 Lesson Unit 4
  - 3.5 Assessment Quiz
  - 3.6 Reflection Questions**
  - 3.7 Instructional Activity
- 4. Conservation Measures
- Instructor Notes
- Instructor Reviews

Reflection Question 1: How could climate change impact the invasive Burmese python in North America?

Reflection Question 2: Why are targeted removals of lionfish deemed necessary in order to protect coral reef ecosystems in the Caribbean?

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Extension School

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## **Abstract**

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## Table of Contents

Abstract .....	i
1. Introduction.....	1
2. Technology Components.....	1
3. Technology Requirements and Workflow.....	2
4. Prototype Development .....	1
5. Work Plan and Milestones .....	1
6. Building the Application.....	1
7. Demonstrative Product.....	1
8. Final Product.....	1
9. Summary and Conclusions .....	1
10. Future Plans .....	1
11. Project Repository.....	1
References.....	12

## **1. Introduction**

The fundamental purpose of the Learning Management System is to bridge the gap between existing eLearning resources which are often too general and not focused on what environmental students need to learn in order to achieve the desired educational outcomes. Since students are more likely to use an e-Learning platform if it was initially assigned, instructors in Sustainability and Environmental Studies, then, are the primary target audience for the LMS who would wish to supplement their own teachings with the learning modules. The learning material is not supposed to be introductory or replace textbooks or lectures, but rather to complement instructor teachings by delving deeper into Sustainability and Environmental Studies topics and issues. The LMS further differs from existing eLearning offerings by using an Understanding by Design approach advocated by Grant Wiggins and Jay McTighe. Key principles of this approach include using hooks, chunking, and repetition, having a big idea, addressing misunderstandings, and promoting enduring understandings (Wiggins and McTighe, 2005).

## **2. Technology Components**

## **3. Technology Requirements and Workflow**

## **4. Prototype Development**

In Instructional Design Studio (Harvard University Extension School EDUC E-113) during the spring of 2019, I conducted student and instructor interviews in order to assess their Sustainability and Environmental Studies learning experiences. Three key educational outcomes were identified:

- . Short, interactive lessons are more engaging than text.
- . Blended learning allows students to proceed at their own pace.
- . Offering multiple ways to teach the same skill is more engaging for students.

While eLearning can help achieve these outcomes, the availability of suitable Open Educational Resources in Sustainability and Environmental Studies is very limited. Furthermore, existing eLearning resources are often too general and do not hone in on what environmental students need to learn. This Capstone's Learning Management System, then, is specifically designed to address these issues by bridging this gap.

## 5. Work Plan and Milestones

Milestone	Completion	Deliverable Description
Finalize the System Design	February 10	Finalize the design of the Learning Management System and curate the first 20% of the instructional content.
Complete the User Interface	March 2	Complete the user interface for the LMS and curate the next 20% of the instructional content.
Provide Community of Practice Access for Instructors	March 23	Provide instructors with secured access to post reviews on the learning modules, lessons, and activities and curate the next 20% of the instructional content.
Provide Community of Practice Access for Contributors	April 13	Provide contributors with secured access to update and create learning modules, lessons, and activities and curate the next 20% of the instructional content.
Complete the System	May 4	Complete the development of the LMS and curate the final 20% of the instructional content.

## 6. Building the Application

### 7. Demonstrative Product

Although the project focus is to curate a Learning Management System to supplement programs in Sustainability and Environmental Studies, the System itself should not be limited to that particular field of study. Rather, the LMS should be developed so its capabilities are independent of the content. In this regard, the Capstone can be treated as a demonstration of the LMS for use in other educational and professional training applications.

### 8. Final Product

## **9. Summary and Conclusions**

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## **10. Future Plans**

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## **11. Project Repository**

The Learning Management System with all of the coding, data, and instructional content is directly hosted in WordPress in a siteground.com web account at <http://johnr1.sgedu.site/wp/>. The custom JavaScript coding, custom CSS styling, images, menus, and instructional content pdfs have been extracted to a GitHub repository at <https://github.com/jreillyHES/Capstone>.

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