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



**Final Presentation**
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# 18 Month Journey

| Time Period | Development Focus |
|---|---|
| Spring 2019 | Performing the Competitive Analysis and the Needs Analysis and developing the Prototype in the Instructional Design Studio course. |
| Summer 2019 | Writing the Pre-Capstone Proposal. |
| Fall 2019 | Refining the project approach and submitting the Capstone Proposal in the Digital Media Design Capstone Tutorial course. |
| Spring 2020 | Building the Learning Management System as the Capstone project. |

# Bridging the Gap

| eLearning Resources for Sustainability and Environmental Studies |
|---|
| Existing eLearning resources are often too general and not focused on what environmental students need to learn. |
| Demand, though, continues to grow at a rapid pace as online education becomes more prevalent and mainstream. |
| Instructional content needs to complement instructor teachings rather than cover introductory concepts or replace textbooks and lectures. |
| Instructional content needs to be tailored to the course requirements by delving deeper into topics and issues in order to promote enduring understandings. |

# Student and Instructor Interviews

| Key Educational Outcomes for the Learning Management System |
| --- |
| 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. |

# Understanding by Design Approach

| Methods to Capture Student Attention and Promote Enduring Understandings |
|---|
| Designing instruction to achieve specific learning goals (Backward Design). |
| Having a Big Idea as the focus point for instruction and assessment. |
| Using hooks to capture student attention. |
| Chunking instructional content into smaller, more manageable pieces to improve retention. |
| Using repetition in instruction to reinforce learning concepts. |
| Crafting essential questions and statements of enduring understandings. |

# Prototype Development

| Proof of Concept Criteria |
|---|
| The eLearning application helped to achieve the key educational outcomes. |
| The Understanding by Design approach helped to realize the key educational outcomes. |
| The system design was effective in supporting the eLearning application and learning approach. |

# Technical Components

| Technical Component | Application in the Learning Management System |
|---|---|
| WordPress Content Management System | Provided many of the required features of the LMS as well as a built-in database to house the instructional content. |
| Custom CSS | Needed to tailor the user experience of the WordPress platform into the custom LMS needed to meet the project requirements. |
| Custom JavaScript | Required to develop the more advanced features of the LMS such as a collapsible menu system and a responsive design. |
| WordPress Plugins | Extended the functionality of WordPress in order to meet the design requirements of the LMS. |

# WordPress Plugins

| WordPress Plugin | LMS Application |
|---|---|
| BackWPup | Backup WordPress Instance |
| Code Embed | Embed JavaScript and HTML code in posts and pages |
| Contact Form 7 | Create Custom Contact Forms |
| Duplicate Page | Duplicate Posts, Pages and Custom Posts |
| Embed Google Map | Create Google Maps |
| HD Quiz | Create Assessment Quizzes |
| Header and Footer Scripts | Embed JavaScript Coding into Header and Footer |
| PDF Embedder | Embed PDF into Posts and Pages |
| Sidebar Login Widget | Create Sidebar Used to Log into the LMS |
| User Access Manager | Manage Access to Posts, Pages, Categories and Files |

# Building the Learning Management System

| Assessment Category | Assessment Criteria |
|---|---|
| Learning Design | Well-structured, interesting and engaging instructional content which supports enduring understandings. |
| User Engagement | Instructors will recognize that the LMS can be used to supplement their teachings. |
| Application | Clearly demonstrates the capabilities of the Learning Management System. |
| Presentation | Clear and consistent professional-looking layout to garner interest in the Learning Management System. |
| Adaptability | Suitable for use in other educational and professional training applications. |

# Capstone 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. |

# The Learning Management System Website Map
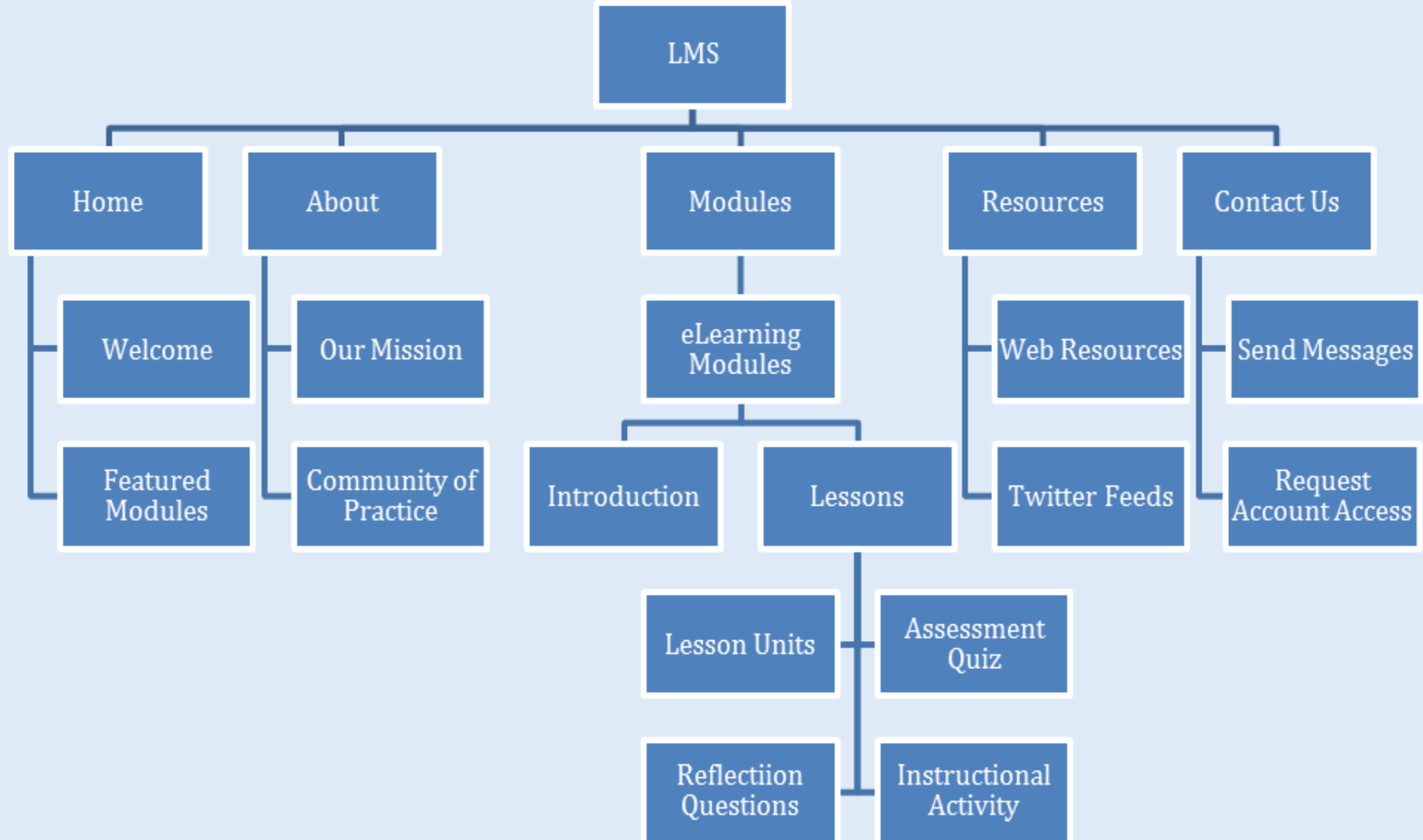
# Clear and consistent professional-looking layout including a Responsive Design
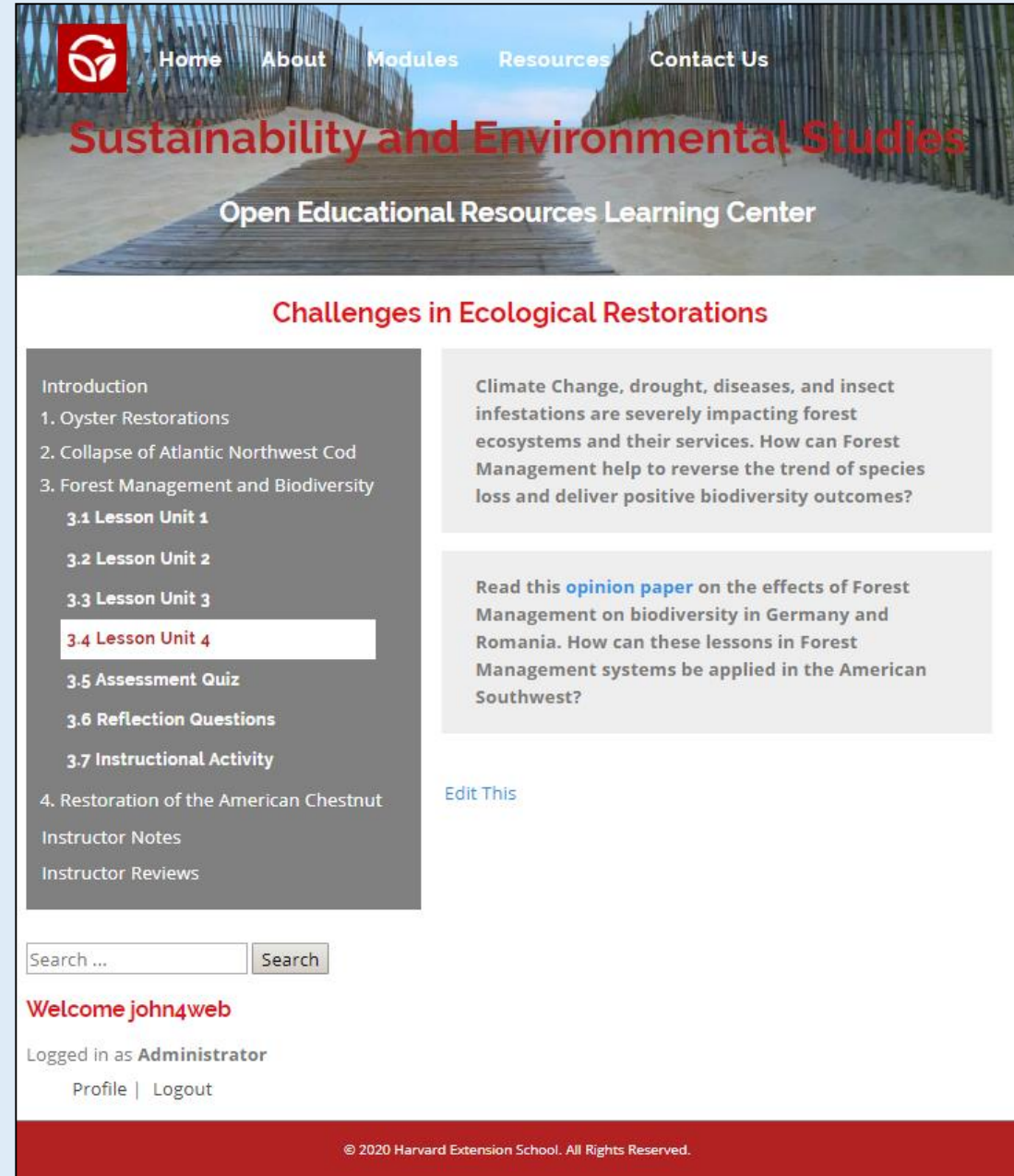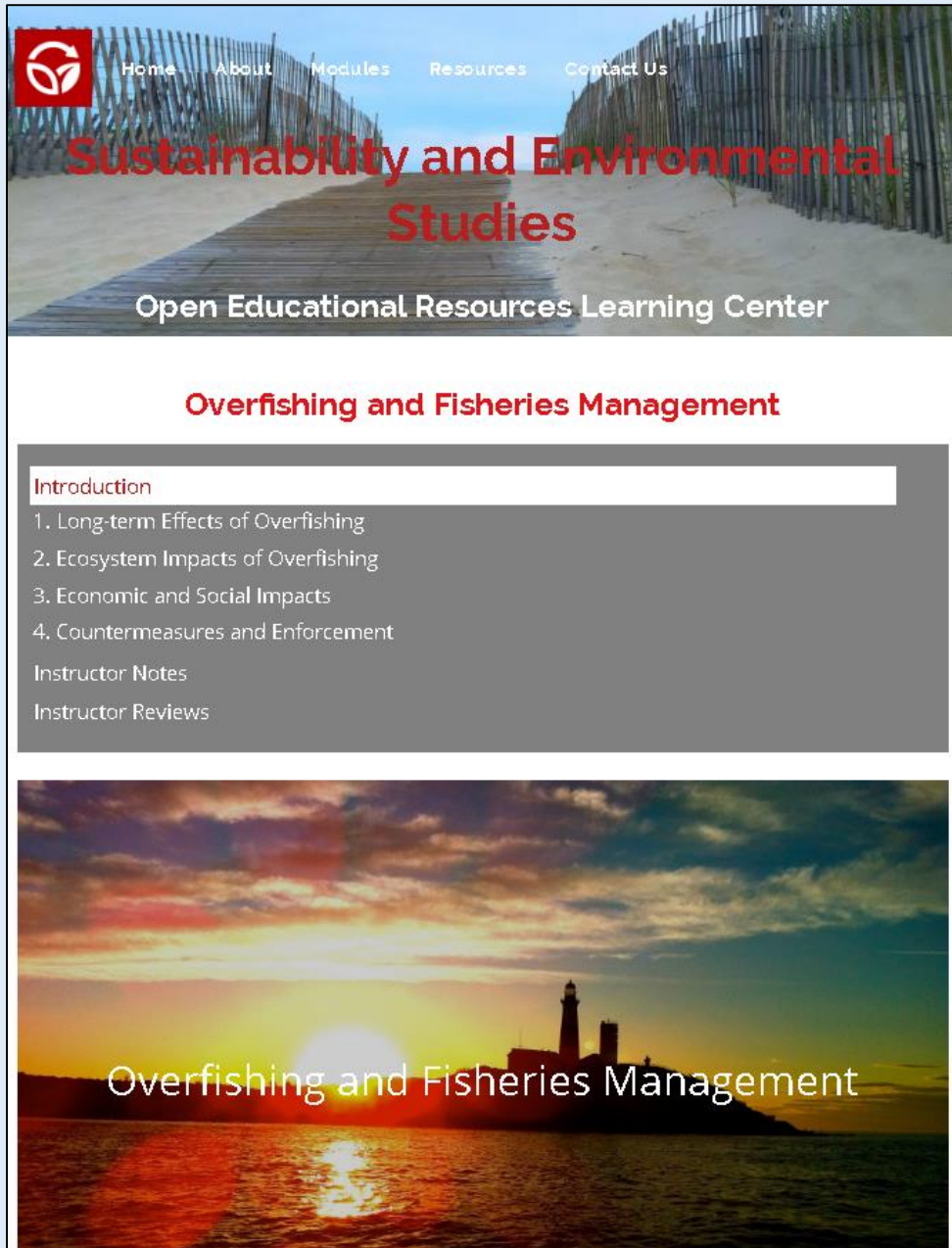
Using the Understanding by Design approach, each lesson unit presents the Big Idea which serves as the focus point for instruction and assessment.

Each Lesson Unit opens with a hook to capture the student's attention.

Since attention significantly decreases after ten minutes, the lesson units are given in smaller, more manageable pieces to improve retention.

A variety of media content (videos, articles, papers and websites) is used to make lesson units more interesting and engaging.

The Assessment Quiz is comprised of five essential questions as indicators of understanding as defined by the Six Facets of Understanding in the Understanding by Design approach.

Reflection questions can be given as individual or group assignments to assess understanding or can be discussed in class.

Students complete the instructional activities which are meant to reinforce the enduring understandings of the lesson.

Instructors can supplement the lesson with their own curated content by posting to the Instructor Notes section.

Finally, instructors can refine the lesson and understandings by posting to the Instructor Reviews section.



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# Sustainability and Environmental Studies

## Open Educational Resources Learning Center

### Overfishing and Fisheries Management

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Introduction
1. Long-term Effects of Overfishing
2. Ecosystem Impacts of Overfishing
3. Economic and Social Impacts
4. Countermeasures and Enforcement
Instructor Notes
Instructor Reviews

*2. Ecosystem Impacts of Overfishing* – The oceans are under assault by both overfishing and climate change. However, these two issues do not need to be addressed mutually exclusively. Climate change is already causing shifts in the distributions of some fish stocks. Fisheries Management can help alleviate the pressure on stocks from overfishing, making them more resilient to the stressors of climate change.

*4. Countermeasures and Enforcement* – While aquaculture can help alleviate the effects of overfishing, it must be done sustainably or risk contributing to the reduction of wild fish stocks worldwide. Many large, carnivorous farmed fish like salmon and tuna can actually consume more fish biomass from wild stocks than they produce. Poorly managed aquaculture can also result in habitat degradation and loss, applying further pressure on wild fish populations.

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# Concluding Remarks

| Summary and Conclusions |
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| Existing eLearning resources are generally limited and not very effective. |
| Demand for online educational resources will continue to grow rapidly. |
| Instructional content in eLearning resources needs to complement instructor teachings. |
| Instructional content in eLearning resources needs to be tailored to the course requirements. |
| eLearning resources need to deploy methods to capture and maintain student attention. |
| eLearning resources need to deploy methods to promote enduring understandings. |

Your suggestions will be greatly appreciated at http://johnr1.sgedu.site/wp/survey/.