CHAPTER

1

Components

- Motor Controller
- Encoder
- Range Finder
- Camera
- Power Distribution Panel
- RoboRIO
- Pneumatics Control Module
- Voltage Regulator Module

CHAPTER

2

Assessment and Evaluation

Calculaion

This is a margin x x x x x x paragraph. It contains a smaller font and is obviously found in the margin of the page on which it is placed.

The course grade is the average of each quarter grade from a combination of project maintenance; education and outreach; and exam grades. Each quarter grade is the ratio of points earned to points possible. Grades restart at the beginning of each quarter. The semester grade is reduced by 0.5 % for every absence and tardy. In addition, negative behavior can result in a similar reduction and possibly reassignment to another project. The approximate weight of each category is shown below.

Category	Weight	Frequency	Points[1]
Project Maintenance	40 %	Weekly	5.0
Education and Outreach	40 %	Biweekly	5.0
Midterm and Final Exam	20 %	Quarterly	2.5

This shows the number of points for each day of class. Combined, the exams are worth twenty percent of the semester grade.

Rubric

Most grades are determined holistically. Points are assigned from the points possible and the letter (quality grade) using the scale shown.

Letter	Description	Percent
A	Excellent	100
B	Good	85
C	Average	75
D	Minimal	65
F	Unacceptable	0

Review

Students may request a review of their grade by submitting supporting evidence no more than one week after the due date. Evidence must usually be submitted in writing. This allows consideration of extenuating circumsances. Project maintenance grades will be entered the following Wednesday.

Failing

Students whose semester grade is D or F are given an explicit opportunity to raise their grade through suggestions and opportunities. These students will be subject to a weekly or biweekly review and have parent communication by mail, e-mail, or phone.

Students will not fail the class due to attendance. In other words, attendance and behavior will not reduce a passing grade below 60%.

Course Description

The Service Learning course at Onaway High School provides meaningful experiences that reinforce learning by connecting students with their local community.

Include some good pictures of students from the different project areas. Include a goal from each area as well as the general tasks and projects.

What this means and how the class works. What do the students do and what are their roles.

The way this works:

student selects an existing project to maintain and develop requiring about 20 min to 30 min per day,

student uses remaining time for education and outreach (see explanation).

History

Course originated in **YEAR** when the guidance counselor approached me about providing an additional science class for the following year. At the time I was looking into Advanced Placement courses and came across an A.P. Environmental Studies class. I also spoke with the new elementary principal who was part of the GLSI Network when she was a teacher. Through GLSI she had received a $5,000 grant. Combined with a Learn and Serve grant for $6,000 she had intended to build a school greenhouse. Previous teachers had tried to start school recycling programs at various times but limited class time made this difficult to sustain.

The result of these conversations was a class called Service Learning that was project driven in four areas: Animals and Habitat, Fisheries and Water, Plants and Forestry, and Recycling and Energy.

Realizations

- Everything takes longer than expected.
- Many community partners exists in our community,
- Projects rarely turn out as expected,
- Be adaptable and ready for change,
- Students become possesive of their projects

Sample Projects – Successful

- Fossil park (USFW)
- Hydroponic Lettuce (B. Moore)
- Lake Trout (USFW, Trout Unlimited)
- Salmon in the Classroom (HBAAA, DNR)
- School Forest Management Plan (Martell, DNR)
- School Greenhouse (GLSI, Garden Club)
- School-wide recycling program (Emmet County Transfer Station)
- Solar panels and wind turbine (GLEE Program)
- Sturgeon on Loan (DNR, SFT)

A Excellent all tasks are completed required outreach completed on time data collected accurately data reported area tasks completed task sheet submitted complete and accurate

B Good all tasks completed data collected accurately data reported most area tasks completed

C Average some required tasks have not been completed

Assessment and Evaluation

Service Projects 40%

Graded weekly. Five points per day of class, whether it is a half-day or a full-day of class.

Students may work in teams (of up to two beginning Winter 2018). Groups of three were permissible earlier.

Some outreach related to a project is required and may impact Service grade if not completed.

See Service Project Areas for ongoing and transient projects.

Consider rotating manager responsibilities (track assignments in group in case of absences)

Should include tracking of data.

Project maintenance grading is based upon the Area. For example, all students in the Animals and Habitat group receive the same project grade.

Education and Outreach 40%

Student selected activites.

Graded bi-weekly. Five points for full day of class, nothing for a half-day of class.

Graded based upon submitted student form of what they did: electronic or paper

See Education and Outreach categories for guidelines.

Presentations 20%

Consists of a midterm and a final.

Weight is 2.5 points per full day of class. Half days do not contribute.

Midterm is a research project related to the class. Grade is based upon presentation format: Video (A or B); Powerpoint or Prezi (B or C); Written paper or display (C or D).

- Rubrics used for each item (see next page)
- Students work in teams of their choice of up to 2. Additional students reduce amount for all or part of a pair
- Students submit their own outreach points on a form, due on following Monday up to Wednesday
- Outreach points are assigned based upon evidence, importance of activity.
- Q1 exam is research, Q2 exam is reflection
- Two kinds of required outreach: project and general.

Project Maintenance

Project Maintenance - students may work alone or with one partner on a project - graded weekly and holistically on a A–F scale, overall progress on day - anticipate about 25–30 minutes of work each days - involves - data collection and reporting - inspections about twice a week or more - fixing issues indicated previously - each area should have a project manager manager signs off on tasks confirming they were done correctly and fully - general maintenance and recording of data, reporting of data timely manner - required outreach is part of each group - daily schedule of student accomplishments - students may appeal grade with justification (in writing) - data turned in weekly, grades may be updated through following Wednesday (or so) - how is data submitted - students may resubmit project once a week

Outreach points are updated every two weeks

Levels

There are five levels or Education and Outreach with varying amounts of points. The maximum number of points may be increased by 20% for events that happen outside of the school day.

5 – Major **2 weeks**

These activities are very important for the class.

Required

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Optional

• Informational signs

Areas (24 students) - Animals and Habitat (4) - Fisheries and Water (8) - Plants and Forestry (8) - Recycling and Energy (6) - Technology and Data (-)

Students receive an overall grade each week on their area from: - Inspection 0–4 A–F - Data 0–4 A–F

Absences and tardies reduce the overall grade: 0.5% per absence and 0.25% per tardy. This amounts to about 5.66 points for any absence. During an absence of a team, another group will be required to step up and complete required tasks. This earns additional points for those involved. There is a list of substitutes. First choice given to those with the fewest points.

Options - Advistory meeting input provides useful input (A–F), 5 points

Service Projects

- New or existing projects, may be in different areas
- Students select teams and projects
- Teams earn points divided equally among members
- Students track what they do each week and write a summary report
- Part of the project grade is maintenance (4), data (2), summary (4)
- Weekly group grade based upon project
- Some tasks rotate among groups (recycling? cardboard? cleaning room, counters?)
- Expect 20–30 minutes per day
- Collect and analyze data, present information, communicate with others
- Option for no project – new project or strictly outreach
- One or more inspections per week
- Some projects have required outreach
- 40% of final grade
- project set-up and break down at beginning and end

Education and Outreach

- Tasks based upon time required and accomplishment (i.e., levels)
- 40% of final grade
- Student submits points weekly or biweekly
- Tracked using online system

- Target points per week (e.g., 5 points per day)
- Required videos, quizzes, etc. for each area

Research and Reflection

- Midterm is a research project
- Final is a student reflection
- Format determines base points: Video (B), Presentation (C), Paper (D)
- Identify requirements: length, content, points
- Must relate to studied topic in class
- Video should be 2–3 minute
- Presentation should be 2–3 minutes and recorded
- Paper should be 500–750 words; minimum of one paragraph per topic; no length requirement
- soft skill area (5), impact on community, community parners, event or activities
- student provides evidence of each item in reflection
- ideal goal is to make video apply to NOAA International Film Contest

Service Projects

Purpose of service projects.

General requirements of a project. select a project, perform maintenance, required outreach, complete form weekly,

Education and Outreach

Actual grade is based upon participation and submitted evidence. At a minimum, every item should include the date and a short description. For level 3 and above, there must be a detailed explanation to receive full credit. An additional 20 % may be awarded for very important events.

Level 5 — 40 points

Direct interaction with community partners; often includes time spent outside of school; requires some sort of presentation; roughly 5 hours or 2 weeks.

- Earth Day event
- Fossil park
- Plant sale
- Shivaree booth
- Sturgeon guard
- Producing a video
- Vernal pool
- Watershed academy

Level 4 — 20 points

May involve direct interaction with community partners or outside the classroom; about one week or 2.5 hours.

- Arrange major trip
- Partner meeting
- Grant application
- Major display
- Bulletin board
- Major fund-raiser
- Major research
- Presenting a lesson
- Information to media

Level 3 — 10 points

These are bigger experiences but may not take a large amount of time to complete. These can be document communication with a community parter

- Advisory meeting
- Arrange minor trip
- Load trailer
- Minor display
- Informal tour
- Update partner
- Volunteer event

Level 2 — 5 points

Physical activities that take no more than 30 min. This includes water monitoring even though it requires some paperwork.

- Class improvement
- General labor
- Project mentor
- Tour (individual)
- Water monitoring

Level 1 — 2 points

Quick maintenance activities that are expected to take no more than ten minutes. These activities do not require any sort of documentation.

- Before school
- Dual enrollment
- After school

List of Forms

- List of student project assignments . . . Shows the individual projects with the students listed below each one. Students must complete the paperwork before switching groups. Students who are in more than one area may receive the average of the two areas.
- Individual student outreach . . . Would be nice in a database format accessed through a web page.
- Project team application . . . This is the official document stating assigned projects. Students are expected to work in this project area until a transfer is approved.
- Fisheries forms. This includes information on a half-sheet of paper such as ammonia, nitrite, nitrate, pH, dissolved oxygen, temperature, salinity, filters, water changes, mortality, and observations. Individual projects may use an alternate form. There should also be a calendar for each project that identifies important dates: reception of fish, mortality, water changes, etc.
- Animals forms. Includes feeding, bedding change, water change, and observations.
- Plants forms. Hydroponics: seeds planted, seeds moved, This might be something for each seed cohort.
- Recycling forms. Collection each day and summary of events. Keep a calendar of the loading, trips, students attending, and so on. Consider giving everyone planner-type pages to track their data.

Education and Outreach

This page is a list of the Education and Outreach supplied by students. This information is transferred to a database drive web site which performs calculations for a weekly grade. Printed reports can be generated as needed.

Assessment and Evaluation

Based upon letter grades converted to percentages through Powerschool. Example as an 'A' is worth 96.5 % which is half-way between 93 and 100.

Education and Outreach

Points are assigned to individuals. Students submit log of points weekly. Long-term projects are to be broken into smaller. Points based upon level, details, and participation. See rubric of A–F.

Excellent	A	100%	Date and time, Description and purpose, Partners, organization, and titles
Good	B	85%	Date and time, Description and purpose (one brief), Partners
Fair	C	75%	Date and time, Description or purpose (both brief), Partners (partial)
Poor	D	65%	Date (only), topic (brief), Partners (vague)
Minimal	F	30%	Date (only), topic (vague)

			Level 1 (2 pts)	Level 2 (5 pts)	Level 3 (10 pts)	Level 4 (25 pts)	Level 5 (50 pts)
Excellent	A	100%	2.00	5.00	10.00	25.00	50.00
Good	B	85%	1.70	4.25	8.50	21.25	42.50
Fair	C	75%	1.50	3.75	7.50	18.75	37.50
Poor	D	65%	1.30	3.25	6.50	16.25	32.50
Minimal	F	30%	0.60	1.50	3.00	7.50	15.00

Midterm and Final Exams

Midterm is a research project. Student format choice determines the maximum

Midterm exam is a research project. Format and quality determines earned points. Video (A), Presentation (B), Written paper (C), list given to teacher (D).

Grades will typically be adjusted one letter up or down based upon quality and contribution to future classes.

Students may submit their exam at any time during the course. A student may choose to apply a particular video to their midterm instead of regular Education and Outreach.

Excellent	A	100%	
Good	B	85%	Video
Fair	C	75%	Presentation
Poor	D	65%	Paper
Minimal	F	30%	

Continuing and Temporary Projects

Each area has an established set of projects that students may join as well as temporary projects that have limited duration. Each projects has daily, weekly, and monthly tasks as well as required Education and Outreach opportunities.

Each project requires following protocols, collecting and analyzing data, creating signs and displays, performing daily maintenance, taking pictures, assembling videos, keeping and inventory, cleaning and organizing, and participating in team meetings.

Animals and Habitat

Maintenance in the Animals and Habitat group primarily consists of feeding animals, cleaning cages, as well as task required of all projects.

- Green snake
- Hedgehogs
- Mice
- Tarantula

Fisheries and Water

Fisheries projects involve feeding fish and turtles, performing water changes, and testing water quality.

- Chinook salmon (Nov–May)
- Goldfish
- Lake sturgeon (Oct–May)
- Lake trout
- Marine tank
- Sea Lamprey (May–Jun)
- Turtles

Plants and Forestry

Plant-related projects require planting seeds, watering, and adding fertilizer.

- Apple Orchard
- Aquaculture
- Flood table
- Hydroponic lettuce
- Raingarden
- School forest
- Schoolyard habitat

Recycling and Energy

Recycling involves collecting and sorting materials. Six times a year materials are loaded onto a trailer and delivered to the Emmet County Transfer Station.

- Cardboard
- Central
- Elementary
- Secondary

Miscellaneous

Students may develop a project that might not fit into an established category. These are generally short-term projects.

- Bottle filling station
- Fossil park
- Fund-raisers

Tuesday, September 5, 2017 Day 1

Began class by surveying student interest and background related to computers. Only one student had experience with replacing hardware although several were able to replace mice and keyboards. A majority of students would like to learn some sort of programming. There were some students who took the class for something different.

We looked at the outside of the case and noticed the number of USB ports for mice and keyboards. Next involved students removing, observing, and replacing hardware. Students took a harddrive, placed it in a tray, and inserted it into the tower. Students then connected power and data cables. Students also removed memory chips and replaced.

After hardware we moved on to booting up a vanilla Debian Stretch system. This system has no graphical interface and very little in the way of system software. Students logged in as root, created a new user using adduser, and then logged in as that user. At this point, we were past 9:15am and several in the class went for grab-and-go breakfast.

NB: Ashlee Crusoe is on vacation from September 6 for about a week.

Wednesday, September 6, 2017 Day 2

Goals. Goals for the second day of class include becoming familar with the command shell. Students should be able to use the following commands: echo, adduser, passwd, cd, ls, mkdir, rmdir, man, passwd, logout, and nano. We will use a simple editor (nano) to create a file, change the executable bit, and execute the script. Demonstrated use of the commands until 8:45. Students implemented commands until 9:15 and then were released for breakfast.

NB: Madison Brilley and Maggie Jones dropped. Chelsea Brewbaker and Garret Roat added.

Thursday, September 7, 2017 Day 3

Goals. Install software. Note that only root (the administrator) can install software. Begin by installing something simple and eventually kde-full. Also give students the option of gnome, firefox, etc. Teach them how to launch programs from the command line and also the start menu.

After this we will look at installing software. Note that only root can install software since anything that is installed might pose a threat. Root must know what they are doing.

Give students advice on selecting good passwords. Passwords should not contain any word found in a directory or a common permutation. Passwords should be at least 8 characters and should include punctuation, numbers, and a combination of upper and lower case letters.

The two commands are apt-cache and apt-get. I will have students install some simply software and

Tuesday, September 5, 2017 Day 1

The first day of class we went through the grading of the class and what students must do to earn their points. The first week of class will be mostly organizational stuff – setting up the projects. Students divided into their teams. There are few students in the Plants and Forestry group so each group will send students on a rotation to help.

Wednesday, September 6, 2017 Day 2

NB: Holly Hoeft dropped.

Decided to keep grades in a YAML or Perl file for each week. This will allow easy processing and placement on the class web site.

All students were provided with a full set of outreach points for the week (see presentation): returning the syllabus signature page (5), providing a summary of the week (5, 10 if including a picture), and providing a description of intended outreach for next week (5).

Animals and Habitat. Students have prepared the back counter for animals and have completed an inventory. The inventory has yet to be placed online.

Fisheries and Water. Rebecca and Cheyenne have expressed an interest in presenting at the GLSI Regional meeting in Gaylord. Check with Olivia is this would be appropriate. Austin, Lauren, and Robert have settled on Bass in the commons area. Maddie will contact Tim about trout and shocking this fall. Becca will get sturgeon water on her own. We will not have a separate degassing tank for the sturgeon since very few water changes were done. Cooper will handle trout and goldfish. Cheyenne has adopted salmon.

We need buckets with lids for water.

Plants and Forestry. Nana is breaking down the hydroponics system in Mr. Pyles room. We need to have a system running by the end of the week and seeds planted in the classroom for germination. Rockwool was not found.

Recycling and Energy. Recyclers include Zebany, Sheri, BreAnna, and Randi; Holly has dropped. All have been trained to read the meters (greenhouse and solar/wind) and will do so once a week. Zebany will get information about NEMCOG grants by the end of the week.

Thursday, September 7, 2017 Day 3

Soft Skills

Due to it's nature as an applied courses, students will be evaluated on their knowledge and use of soft skills in the context of their projects. These skills will help determine project assignments. Provide examples illustrating that students can demonstrate each skill.

1. Teamwork and Collaboration

Employers want employees who play well with others – who can effectively work as part of a team. "That means sometimes being a leader, sometimes being a good follower, monitoring the progress, meeting deadlines and working with others across the organization to achieve a common goal," says Lynne Sarikas, the MBA Career Center Director at Northeastern University.

The ability to work in teams, relate to people and manage conflict is a valuable asset in the workplace. This skill is important to get ahead – and as you advance in your career, the aptitude to work with others becomes even more crucial. Personal accomplishments are important on your resume, but showing that you can work well with others is important too.

It is imperative for college-bound students to function efficiently and appropriately in groups, collaborate on projects and accept constructive criticism when working with others. People who succeed only when working alone will struggle in college and beyond, as the majority of careers require collaboration.

2. Enthusiasm and Attitude

Give examples of how you improved employee morale in a past position, or how your positive attitude helped motivate your colleagues or those you managed. Earnest suggests: "Some people are naturally bubbly and always upbeat. Others have a more tame and low-energy demeanor. Especially if you tend to be more low-key, smile when you shake the interviewer's hand and make an extra effort to add some intonation and expression to your responses."

Enthusiasm, Positive attitude, Accepting responsibility, Eagerness to learn new things, Open to new ideas

3. Verbal and Non-verbal Communication

Communication skills involve active listening, presentation as well as excellent writing capabilities. One highly sought-after communication skill is the ability to explain technical concepts to partners, customers and coworkers that aren't tech savvy.

Students can demonstrate these skills through interaction with peers, communication with staff, participating in meetings, constructing e-mails, creating displays, writing letters, giving presentations, using appropriate body language, maintaining eye contact, actively listening, asking good questions, and speaking on the telephone.

4. Problem Solving and Critical Thinking

The ability to use creativity, reasoning, past experience, information, and available resources to assess issues and resolve issues is attractive because it saves everyone at the organization valuable time. Highlight this skill by listing an example of when your organization had a sticky situation and you effectively addressed it.

Project management skills: Organization, planning and effectively implementing projects and tasks for yourself and others is a highly effective skill to have. In the past, this was a job in itself. Nowadays, many companies aren't hiring project managers because they expect all of their employees to possess certain characteristics of this skill.

5. Professionalism and Work Ethic

Employers are looking for employees that take initiative, are reliable and can do the job right the first time. Managers don't have the time or resources to babysit, so this is a skill that is expected from all employees. Don't make the hiring manager second-guess by sending a resume with typos, errors and over-exaggerated work experience.

Employers are on the lookout for people who take pride in their work, and are confident enough to put their name to it. They also respect people who can hold their hands up when things go wrong, and don't pass the buck. Everyone makes mistakes – it's how you react and learn from them that counts.