

**DEVELOPMENT OF
ONLINE COURSE IN
MAPLE SYRUP
MANAGEMENT
& CULTURE**



Michigan Tech

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WHERE'S MICHIGAN TECH?



ABOUT ME

- Training in Forest Health/Forest Management
 - Sugar Maple Dieback in Upper Midwest correlated to exotic earthworms
- I'm not an expert!
 - Hobbyist at home
 - Maple Syrup Festival in my hometown
 - Helped Amish neighbors collect sap



HOW IT CAME ABOUT

- SFRES Instructor who ran sugarbush as part of Forestry Internship Class at Alberta MI left the school in summer 2014
 - no one was going to continue that part of it!
- Wrote and won a mini-grant from MTU Center for Teaching and Learning for “Development of Blended Learning Course on Maple Syrup Management & Culture”
 - pilot in spring 2015



WHERE ARE WE TALKING?

- Village of Alberta, MI
- ~40 miles south of Houghton
- ~5,000+ acres of school forest in the immediate area



WHAT IS BLENDED LEARNING?

Blended Learning is receiving content via various ways

- Some digitally or online
- Gives students control over timing, due dates, pace, or place
- *FW 3765 Maple Syrup Management & Culture* consists of:
 - PPT slides and recordings all online
 - Videos and links to more information
 - Online multiple choices quizzes
 - PDF reading material with short reflective essay assignments
 - Artistic design assignment
 - Minimum 6 hours participation in field tapping, boiling, and producing, and cleaning up after*



GOOGLE IT?

- Search for “Maple Syrup College Class”
- Whole host of frivolous listings pop up

About 684,000 results (0.64 seconds)

Maple Syrup: The Real Thing | 15 bizarre college courses | MNN ...

www.mnn.com › Lifestyle › Arts & Culture ▼

Nov 24, 2010 - ... and ready to learn a real hands-on skill? Then Alfred University's **Maple Syrup: The Real Thing** is t. ... students in **college seminar class**.

Maple Syrup Boiling | Vermont Tech - Vermont Technical College

www.vtc.edu/ag-course/maple-syrup-boiling/ ▼

Course topics will include discussions on sap concentration, reverse osmosis (RO) devices, fuel options and fans, filtering, **syrup** grading and flavor, evaporator ...

10 Strangest College Courses Ever Offered - College Degrees

www.collegedegrees.com/blog/2011/08/.../10-strangest-college-courses-ever-offered/ ▼

Aug 26, 2011 - While **colleges** across the country offer great courses to ensure that students ... York, this **course** explores the history of **maple syrup** production.

Maple Syrup – Penn State Extension

extension.psu.edu › Extension › Natural Resources › Forest Resources ▼

The maple industry produces a wide-range of quality products with most production still going into syrup. ... **Maple syrup** is considered by many to be the ultimate natural product. Anybody ... 2016 Penn State **College** of Agricultural Sciences.

100 Hilarious College Courses that Really Exist - OnlineUniversities.com

www.onlineuniversities.com/blog/.../100-hilarious-college-courses-that-really-exist/ ▼

Oct 21, 2009 - This **class** addresses that subject directly, allowing students to pull apart as a **maple syrup** maker, this **course** offers to teach them everything ...

Wacky College Courses - IvyWise

<https://blog.ivywise.com/blog-0/bid/138938/Wacky-College-Courses> ▼

Nov 27, 2012 - Here are some weird and wacky **college** courses that go much deeper ... In Alfred University's **maple syrup course**, students learn about the ...

7 unconventional food classes that scream college - Mashable

mashable.com/2015/05/04/food-college-courses/ ▼

May 4, 2015 - 7 unconventional food **classes** that scream **college** ... According to the **course** description, **maple syrup** is something that has endured, despite ...

Maple Syrup: The Real Thing - Alfred University

<https://www.alfred.edu/honors/archive.cfm> ▼

A large unit of the **course** will be devoted to current affairs, especially in This **class** will explore the history of **maple svrup** production. discover the ins and outs ...

ONE TOPIC- ENDLESS FIELDS

“A complete syrup and sugar maker comprises in himself a woodcutter, a forester, a botanist, an ecologist, a meteorologist, an agronomist, a chemist, a cook, an economist, and a merchant. Sugaring is an art, an education, and a maintenance.”

-Helen and Scott Nearing, *The Maple Sugar Book*, 1950

- Goal of my class
 - “something for everyone” and increase the applicability
 - Maybe you make it every year at home, or just want to try it out for the first time!

COURSE COLLABORATORS

- Enlisted others to help develop course content
- Dr. Molly A. Cavaleri, Associate Professor of Tree Physiology (physics of sap flow),
- James M. Schmierer, School Forester (sugarbush silvicultural management)
- Gerald Jondreau, Tribal Forester for the Keweenaw Bay Indian Community (cultural significance and historical impact).



COURSE CONTENT LAYOUT

Pre-Class Survey

1. Intro – Why does maple matter?
2. Cultural and Historical Significance of Maple and Maple Products
3. Dendrology and Ecology Related to Maple Syrup Production
4. Tree Physiology related to Sap Flow
5. Gathering Sap, Syrup, & Sugar Production
6. Business Operations, Marketing, & Other Value-Added Products
7. Changing Climate and Outlook on the Industry

Post-Class Survey



CANVAS MODULES

Canvas is sort of like Blackboard

The screenshot displays the Canvas LMS interface. On the left is a navigation sidebar with icons for Home, Modules (highlighted), Course Evaluation, Announcements, Assignments, Quizzes, Grades, Pages, Discussions, People, Syllabus, Collaborations, Files, Conferences, Outcomes, and Settings. Below these are icons for Calendar, Inbox, Commons, and Help. The main content area shows a list of modules under the heading 'View Progress + Module'. The modules are:

- Class Pre-Survey** (Status: Complete) containing:
 - Pre-Class Survey (10 pts)
- 1) Why does Maple Matter? (1 reflection)** (Prerequisites: Class Pre-Survey) (Status: Complete) containing:
 - Why does Maple Matter?
 - Maple Syrup Making 1930s.mp4 - in the UP over 85 years ago!
 - Maple Syruping in Michigan (15 pts)
- 2) Cultural Significance of Maple and Maple Syrup (1 quiz, 1 discussion, 1 reflecti...)** (Prerequisites: Class Pre-Survey) (Status: Complete) containing:
 - Social function and Culture-module 2-A
 - Quiz Module 2-A Today's Society (7 pts)
 - Maple Syrup Food Culture module 3-b 2017.pdf
 - Maple Recipe - module 2-b
 - Ojibwe zizibakwad reading
 - Maple Sugar Moon reading

At the bottom, a taskbar shows several open PDF files: 'alberta pic.pdf', 'Fondulac presentati....p...', 'CNRE Stakeholder Q....pdf', and 'CNRE student Quest....pdf'. A 'Show all' button is visible in the bottom right corner.

PRE- AND POST- CLASS SURVEYS

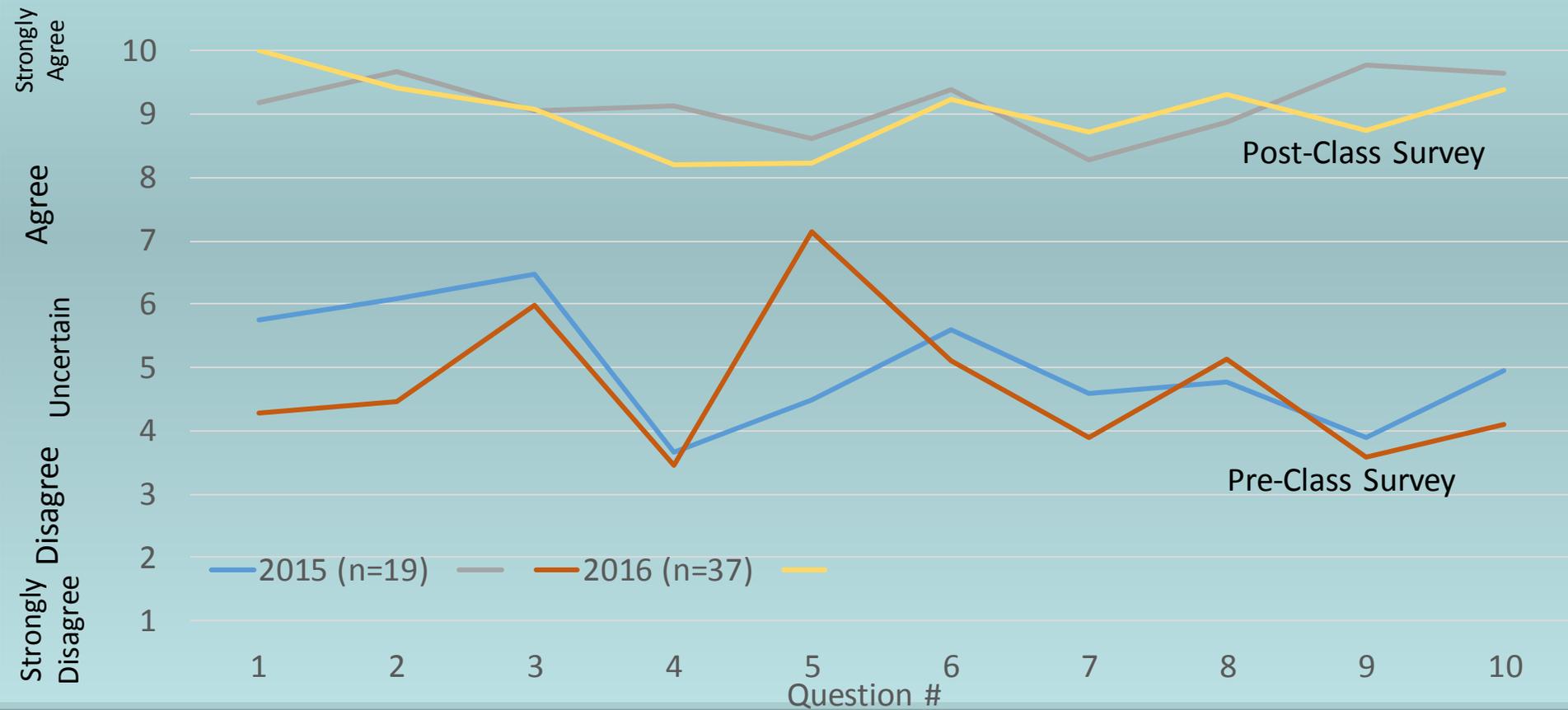
*Pre- and Post- Class Survey Statements Administered Online
(agreement rated on a 10 pt scale)*

10 questions such as:

1. I feel I could thoroughly describe and explain the process of gathering sap and making maple syrup to my friends, family, and colleagues.
3. I have an appreciation of the historical and cultural significance of sugar maple non-timber uses.
4. I can name at least 6 different trees that edible sugar and syrup can be produced from.
6. I can identify more than 2 common insects and pathogens of maple trees.
10. I have experience gathering and producing pure maple syrup with my own hands.



Maple Syrup Pre- & Post- Class Surveys Average Scores for 10 questions related to class modules and experience



- Average 4 pt increase in agreement with statements post-class

STUDENT DIVERSITY

- No prerequisites – any year, any class standing, grad or undergrad, any major or department
- *65%+ of the class in 2016, 2017 were non-majors (outside SFRES) – most mixed student class in our department!*

Computer Engineering
Civil Engineering
Biomedical Engineering
Environmental Engineering
Electrical Engineering
Mechanical Engineering
Biochemistry/Molecular Biology

Materials Science
Finance/Economics
Accounting
Marketing
Management
Supply Chain Management
Scientific/Technical Communication



Geospatial Technology
Computer Science
Psychology
General Sciences and Arts
Physics
Anthropology
Medical lab science

OUTREACH



Beyond student involvement, the course lends itself to outreach opportunities, such as signs on the MTU ski trail, or getting kids to make their own maple candy. Over 300 people visited during the field days in 2 years (without really advertising for it!)

DEMAND FOR THIS TYPE OF COURSE

- Demand is increasing for
 - Online classes
 - Blended learning and flipped classrooms
 - Authentic, hand-crafted, items and foods
 - How to use local natural knowledge (TEK and ethnobotany)
 - More cultural diversity integrated in college curriculum
 - Ways to recruit more students to natural resources!



MODEL FOR OTHER POSSIBILITIES

Topics that could use the model for this course to fill the demand are virtually endless. **Non-timber forest products** or **ethnobotanical courses** can be developed for most all regions or habitats. It is a chance to combine the popularity of topics with the science and encourage people to take a class outside of the norm and possibly even matriculate into natural resources.

Food and **art** particularly draw people together!

Examples for similar modeled courses in the Midwest

Wild rice
Mushrooms for food, dye
Berries
Birch bark crafts
ash/basswood fibers
Sustainable lichen harvesting

Cattail/Reed mats/baskets
Spring Foraging/ Fall Foraging
Wild Ginseng
Oak, Acorns and Natural Inks
Apple or orchard management
Ramps and Leeks



Natural Medicines
Canoes and Baskets
Multi-use of Grass
Tree Oils and Resins
Growing Fern Fiddleheads
Fuelwood Management

TAKE HOME MESSAGE ABOUT THIS CLASS

- Interactive, hands-on learning experience
- Recruitment and Inclusion Tool
- Research Tool
- Product is Marketable, Profitable, Healthy
- High demand: students, other instructors, community members want to take it
- Model for other ethnobotanical courses with a culturally important focus





Maple Syrup Class and KBIC Youth Winter Culture Camp

REFERENCES

- Aydin, G. 2016. Authenticity, Uniqueness and Intention to Buy Scare Products. *Int J Market Studies* 8.2 (2016)
- Bilbeisi, KM and Minsky, B. 2016. Teaching online versus teaching hybrid and in-class. *Int J Innov Edu Res* 2.9 (2016)
- Klichling, et al., 2009. Demand for non-timber forest products: surveys of urban consumers... *Forest Policy Econ* 11:294-300
- Ludvig et al., 2016. The practice of entrepreneurship in the non-wood forest products sector. *Forest Policy Econ* 66:31-37.
- Maguire, M. 2013. From mushrooms to dandelions: foraged food finds way to U.S. tables. Mar 23. 2013. Reuters.
- Schunko et al., 2015. Explaining the resurgent popularity of the wild: motivations for wild plant gathering... *J Ethnobia* 11:55