



# Castleton University

## 2021/2022 Academic Year

**Title:** Personalized, Multidimensional Professional Learning for Energy/Climate Focused Instruction

**Credits:** 3 graduate credit

**Instructor:** Laura MacLachlan and Mariah Keagy with support from VEEP/NHEEP educators

**Dates:** Rolling Enrollment. Flexible start and end dates within this time frame to be discussed with and determined by VEEP

**Location and Dates:** Summer Semester beginning May 15, 2021. Determined collaboratively with participants.

**Course Code:** EDU 5627 C09a (Keagy)  
EDU 5627 C09b (MacLachlan)

**Tuition:** \$1,100

### Course Description:

Personalized, Multidimensional Professional Learning for Energy/Climate Focused Instruction is a 3 credit course providing personalized instruction for teachers. In this course teachers will receive support from a VEEP educator who acts as a thought partner/coach to help each teacher articulate and reach their own instructional goals. The course instructor will guide and assess the work of the teacher as they collaborate with their VEEP coach to gather baseline data, engage in a reflective process that focuses on a set of specific instructional goals, identify a specific performance indicator to target, practice new skills, reflect on instructional shifts, and make progress towards their goal.

### Learning Objectives:

#### The participant will:

1. Articulate their own learning goals around implementation of 3 dimensional, personalized energy and/or climate focused learning.
2. Work with a VEEP educator to collect baseline data about instructional practice
3. Engage in reflective goal setting focused on specific instructional goals
4. Define actionable goal achievement.
5. Practice desired skills
6. Reflect on changes in practice

7. Show evidence of progress towards learning goals.

### **General Course Information:**

#### **Attendance Expectations**

Participants will consult with their VEEP thought partner/ coach regularly through in person meetings and observations, virtual meetings, and e-mail.

#### ***Required Readings***

VEEP educators will assign academic readings based on the teacher's articulated goals.

#### **Other Resources**

- The Vermont Comprehensive Energy Plan:  
<http://legislature.vermont.gov/assets/Legislative-Reports/Executive-summary-for-web.pdf>
- Vermont Agency of Natural Resources – Climate Change in Vermont Website:  
<http://climatechange.vermont.gov/>
- Community Energy Dashboard: The Energy Action Network (EAN) has created a Community Energy Dashboard to enable communities to understand their energy use and make clean energy choices and investments across all energy sectors: electric, thermal, and transportation. The Dashboard makes energy use across all three sectors visible and understandable to consumers and communities as a whole. The goal is to inform, educate, and engage Vermont communities in energy use, leading to action and documenting impacts. <http://www.vtenergydashboard.org/>

#### **VEEP Developed Curricula and Kit Materials:**

- *Wind and Solar FUNdamentals* - Introduce your youngest students to Wind and Sun! VEEP has designed an introductory unit on wind and sun for K–3 that incorporates engineering principles in engaging, hands-on lessons, using NGSS and Common Core as frameworks. With a focus on being an engineer, students will build, share, and redesign models to understand how we can effectively use wind and sun.
- *Wind Works* - Hold on to your notebooks! Large fans and demonstration wind turbines unite to create electricity and present the power potential of wind. Students take measurements of wind speed with handheld anemometers and measure the voltage output on specially designed wind turbines. Students then graph the resulting data to explore the relationship between wind speed and power, and evaluate wind power as an energy alternative here in Vermont.
- *Solar Challenge* - Challenge your students to build a collector to boil water with energy from the sun. Students go to engineering school, learn about

collector design, and parabolas through hands-on experiments. Student teams design and build solar collectors and compete for prizes in several categories. Materials kit for Solar Challenge includes reflective Mylar, cardboard, and mini-collector patterns.

- o *PVs in Action*- Turn your students into solar energy experts. Materials kit includes mini PV panels, motors, and lights (just in case!): everything you need to demonstrate solar power right in the classroom. PVs in Action Curriculum guide has lessons that build on each other.
- o *Modeling Climate Science*- How do human activities affect Earth systems? Help your students develop their understanding of factors that have caused the rise in global temperatures over the past century with the emphasis on the major role that human activities play. Students ask questions, build models, and engage in investigations and then apply this knowledge to help minimize the risks of climate change.
- o *Electricity and Climate Change*. Students explore science and human impacts on the environment in a hands-on, meaningful way. Dive into learning about electricity generation, renewable energy and climate science through demonstrations, discussions, modeling, and student investigations.
- o *Home Heat Transfer Storyline*. Students investigate the science of heat transfer in VT and NH homes, how heating our homes is related to CO<sub>2</sub> and climate change, and what we can do to reduce our home heating impact and stay cozy. As part of their learning, students will design, engineer, and test model houses for best insulation strategies.

**Teachers will be supported by VEEP coach and course instructor with some or all of the following:**

- Finding targeted academic readings and videos to support goal achievement.
- Reflecting as a thought partner on the teachers' practice, goals, and achievements.
- Observing the teacher instruct students and providing feedback
- Modeling in class instruction with debrief meetings to reflect on what was observed.
- Providing feedback and support in an ongoing basis through virtual, in person and/or asynchronous sessions as the teacher works to implement the learning in his/her classroom.
- Reflecting together on confidentially shared student work samples.
- Providing written comments/reflections via email and google docs on teachers' work.

**Student Evaluation/Assessment:**

A minimum of 45 hours of PD that includes

- 2 hours initial planning and goal setting.
- 6 hours of academic readings with written reflections on the teachers' goal achievement and what the teacher has learned and how it relates to their own practice.

- 35 hours of iterative planning, integrating new skills into the classroom, reflecting on outcomes, asking additional questions and continuing to plan, integrate and reflect.
- 2 hours of final written reflection

### ***Percentage Contribution of Each Assignment***

Guided exploration of personal educational goals through conversation, academic readings and written reflection (35%)

Iterative design and practice of new skills with reflection (65%)

### **Castleton Academic Policies**

#### **Grading Policy:**

Grades are indicated by letters with a designated “quality point” value assigned to each as follows:

A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3

Additional grading information can be found in the Castleton University Graduate Catalog, under Academic Policies, accessible online at:

<http://catalog.castleton.edu/index.php>

#### **Academic Honesty Policy:**

Castleton University is a learning institution committed to the highest standards of scholarly conduct. The students, faculty, and administration make up a scholarly community whose integrity and success necessarily stem from a mutually agreed upon code of academic standards and principles that promote trust and honesty and prohibit the attempt to gain unfair academic advantage. Membership in the Castleton community means sharing responsibility for upholding and safeguarding these academic standards and principles.

Any violation of academic honesty will be considered cheating and will be dealt with accordingly by the appropriate authorities.

For more information click the link below to access the Castleton University Graduate Catalog Academic Policy section:

[http://catalog.castleton.edu/content.php?catoid=16&navoid=1204#Academic\\_Honesty](http://catalog.castleton.edu/content.php?catoid=16&navoid=1204#Academic_Honesty)

#### **Use and Ownership of Copyrighted Materials:**

For information and guidance, faculty and students are referred to the Vermont State College Manual of Policy and Procedures as it relates to the use and ownership of copyrighted materials. Guidelines are set out in Policy 416, accessible online at the following address:

<http://www.castleton.edu/library/information-literacy-graduation-standard/information-literacy-tutorial/information-ethics-citing-sources-and-fair-use/>

**Accommodations:**

Castleton is committed to providing reasonable accommodations to qualified students with disabilities so that no such student shall, by reason of a disability, be excluded from participating in or be denied the benefits of the services, programs or activities of Castleton University. For more information, please contact the Coordinator of Disability Services, at (802) 468-1428.

**Course Drop Policy:**

Castleton University offers courses to educators with the expectation that participants will complete the course. However, the University realizes circumstances arise in one's personal life that may cause disruptions. **The policy for dropping a course is that a participant will notify the instructor in writing of the intent to withdraw from the course. The withdrawal notice should be made within the first week of the course and should include the reason for withdrawing.** After week one, changes in class status will be considered for health, bereavement, and personal or emergency situations only. Those who withdraw without adhering to this policy may receive a failing grade on their transcript and/or be liable for associated course costs. For more Academic Policy information, check the link below to access the Castleton University Graduate Catalog: <http://catalog.castleton.edu/content.php?catoid=23&navoid=2159>

**Transcript Request:**

[www.castleton.edu/transcripts](http://www.castleton.edu/transcripts)