

## **ELP 510: Theory-to-Practice in School Gardens**

Leadership for Sustainability Education (LSE)

Educational Leadership & Policy

Graduate School of Education

Portland State University

Summer 2012

CRNs: 82785, 82786, 82957

Monday-Thursday, June 18-28, 9:00-1:00

Location(s): Lane, Lent, Kelly, or Woodmere Schools

### **Professors' Contact Information:**

Dr. Sybil Kelley

503-725-5976-office; [sybilkel@pdx.edu](mailto:sybilkel@pdx.edu)

**Office hours:** By appointment-e-mail to schedule

**Office:** ED 504F

Dr. Dilafruz Williams

503-830-6071-office; [williadi@pdx.edu](mailto:williadi@pdx.edu)

**Office hours:** By appointment-e-mail to schedule

**Office:** ED 504W

Nancy Lapotin; Portland Public Schools' Science TOSA

971 533 2273 office; [nlapotin@pps.net](mailto:nlapotin@pps.net)

**Office hours:** By appointment-e-mail to schedule

**Office:** Portland Metro STEM Center

### **Course Description:**

Educators from various contexts and in various stages of professional development (in-service teachers, pre-service teachers, extended-day/SUN school teachers, informal science educators, etc.) will join forces to put research-based science education into practice. Each day, educators will work with K-8 students at one of four partnering SUN schools in outer SE Portland (Lane, Kelly, Lent, or Woodmere), collaboratively enacting a co-designed STEM program at the school's garden. The garden-based STEM program will provide teachers and community-based educators with the opportunity to implement a standards and place-based curriculum that incorporates the effective use of formative assessments, and hands-on, inquiry-based activities with elementary students, all in the fun and engaging context of a summer garden camp. Utilizing the garden as a context for teaching and learning, this summer program will provide the foundation for aligning learning and enrichment activities across the regular school day and the extended-SUN school program.

The purpose of this course is for teachers and graduate students to:

- Build professional learning communities among the entire group, spanning various schools and locations, that support the development of knowledge, skills, and dispositions necessary for reflective practice and action research (GSE 1.1, 2.2, 3.1, 3.3);
- Develop an understanding of theoretical frameworks for Science, Technology, Engineering, and Math (STEM) and Garden-based education (GBE) (GSE 2.1, 2.2, 3.1, 3.2, 3.3);

- Apply STEM education research and GBE theory into practice, through the context of school and community-based learning gardens (GSE 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3).

**Course Objectives:**

Upon successful completion of this course you will:

1. Build professional relationships as co-learners and co-teachers with colleagues from various locations(GSE 1.1, 2.2, 3.3);
2. Gain experience and confidence working with diverse, “at-risk” students in a garden-based (out-of-school) setting (GSE 1.1, 1.2, 2.1, 2.2, 3.1);
3. Develop proficiency utilizing gardens as a context for standards-based instruction (GSE 1.2, 2.1, 2.2, 3.1, 3.3);
4. Develop proficiency utilizing formative assessment strategies to identify students’ current understandings and to guide instruction (GSE 1.1, 2.1, 2.2, 3.1, 3.2, 3.3, 4.1).

**ELP 510: Connect-to-Science through Learning Gardens**

Leadership for Sustainability Education (LSE)

Educational Leadership & Policy

Graduate School of Education

Portland State University

Summer 2012

CRNs: 82783, 82784, 82956

Monday-Thursday, June 18-28, 1:00-5:00

Location: Learning Gardens Laboratory

**Professors’ Contact Information:**

Dr. Sybil Kelley

503-725-5976-office; [sybilkel@pdx.edu](mailto:sybilkel@pdx.edu)

**Office hours:** By appointment-e-mail to schedule

**Office:** ED 504F

Dr. Dilafruz Williams

503-830-6071-office; [williadi@pdx.edu](mailto:williadi@pdx.edu)

**Office hours:** By appointment-e-mail to schedule

**Office:** ED 504W

Nancy Lapotin; Portland Public Schools’ Science TOSA

971 533 2273 office; [nlapotin@pps.net](mailto:nlapotin@pps.net)

**Office hours:** By appointment-e-mail to schedule

**Office:** Portland Metro STEM Center

**Course Description:**

Educators from various contexts and in various stages of professional development (in-service and pre-service teachers, extended-day teachers, informal science educators, etc.) work together to learn theory and best-practices of science and sustainability education, then put this understanding into practice by designing curriculum that utilizes learning gardens (at schools and/or community sites) as a rich context for STEM learning and teaching. Participants will specifically focus on developing

standards and inquiry-based curriculum that integrates content, formative assessments, and experiential learning activities.

The purpose of this course is for teachers and graduate students to:

- Build professional learning communities among the entire group, spanning various schools and locations, that support the development of knowledge, skills, and dispositions necessary for reflective practice and action research (GSE 1.1, 2.2, 3.1, 3.3);
- Develop an understanding of theoretical frameworks for Science, Technology, Engineering, and Math (STEM) and Garden-based education (GBE) (GSE 2.1, 2.2, 3.1, 3.2, 3.3);
- Apply STEM education research and GBE theory into practice, through collaborative development of STEM-focused, integrated garden-based learning units (GSE 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3).

### **Course Objectives:**

Upon successful completion of this course you will:

5. Feel connected as co-learners to colleagues from your school and other locations (GSE 1.1, 2.2, 3.3);
6. Become familiar with the new Framework for STEM Education (Framework) (NRC, 2011) and the Next Generation of Science Standards (NGSS)(Citation)(GSE 2.1, 2.2, 3.1, 3.2, 3.3);
7. Develop an understanding of garden-based educational theory and how it aligns with STEM education (GSE 2.1, 2.2, 3.1, 3.2, 3.3);
8. Identify appropriate strategies for differentiated instruction for diverse learners (GSE 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 4.1);
9. Work collaboratively with other teachers and educators to design integrated STEM units that support students' development of scientific understanding as described by research-based learning progressions outlined in the Framework and NGSS (GSE 1.2, 2.1, 2.2, 3.2, 3.3);
10. Design standards and place-based, integrated units using school gardens as a context for learning and theme for developing an understanding of STEM educational practices (GSE 1.2, 2.1, 2.2, 3.1, 3.2, 3.3)
11. Gain experience developing standards-based curriculum that utilizes gardens as an integrating context for teaching and learning (GSE 2.1, 2.2, 3.1, 3.2, 3.3).
12. Identify appropriate, research-based formative assessment strategies that can inform teaching and help guide instructional practices (GSE 2.1, 2.2, 3.1, 3.2, 3.3, 4.1).

## **ELP 510: Theory-to-Practice in School Gardens**

Leadership for Sustainability Education (LSE)

Educational Leadership & Policy

Graduate School of Education

Portland State University

Summer 2013

*3 Credits*

CRNs: 82344 & 82345

Monday-Friday, June 24-28; 8:30-12:15  
Monday-Wednesday, July 1-3; 8:30-12:15  
Location(s): Lent, Kelly, or Woodmere Schools

**Professors' Contact Information:**

Dr. Sybil Kelley

503-725-5976-office; [sybilkel@pdx.edu](mailto:sybilkel@pdx.edu)

**Office hours:** By appointment-e-mail to schedule

**Office:** ED 504F

Nancy Lapotin; Portland Public Schools' Science TOSA

971-533-2273 office; [nlapotin@pps.net](mailto:nlapotin@pps.net)

**Office hours:** By appointment-e-mail to schedule

**Office:** Portland Metro STEM Center

**Course Description:**

Educators from various contexts and in various stages of professional development (in-service teachers, pre-service teachers, extended-day/SUN school teachers, informal science educators, etc.) will join forces to put research-based science education into practice. Each day, educators will work with K-8 students at one of three partnering SUN schools in outer SE Portland (Kelly, Lent, or Woodmere), collaboratively enacting a STEM program at the school's garden. The garden-based STEM program will provide teachers and community-based educators with the opportunity to implement a standards and place-based curriculum that incorporates the effective use of formative assessments, and hands-on, inquiry-based activities with elementary students, all in the fun and engaging context of a summer garden camp. Utilizing the garden as a context for teaching and learning, this summer program will provide the foundation for aligning learning and enrichment activities across the regular school day and the extended-SUN school program.

The purpose of this course is for teachers and graduate students to:

- Build professional learning communities among the entire group, spanning various schools and locations, that support the development of knowledge, skills, and dispositions necessary for reflective practice and action research (GSE 1.1, 2.2, 3.1, 3.3);
- Develop an understanding of theoretical frameworks for Science, Technology, Engineering, and Math (STEM) and Garden-based education (GBE) (GSE 2.1, 2.2, 3.1, 3.2, 3.3);
- Apply STEM education research and GBE theory into practice, through the context of school and community-based learning gardens (GSE 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3).

**Course Objectives:**

Upon successful completion of this course you will:

1. Build professional relationships as co-learners and co-teachers with colleagues from various locations(GSE 1.1, 2.2, 3.3);
2. Gain experience and confidence working with diverse, “at-risk” students in a garden-based (out-of-school) setting (GSE 1.1, 1.2, 2.1, 2.2, 3.1);

3. Develop proficiency utilizing gardens as a context for standards-based instruction (GSE 1.2, 2.1, 2.2, 3.1, 3.3);
4. Develop proficiency utilizing formative assessment strategies to identify students' current understandings and to guide instruction (GSE 1.1, 2.1, 2.2, 3.1, 3.2, 3.3, 4.1).

## **ELP 510: Integrating STEM & Sustainability Education through Learning Gardens**

Leadership for Sustainability Education (LSE)

Educational Leadership & Policy

Graduate School of Education

Portland State University

Summer 2013

*3 Credits*

CRNs: 82346 & 82347

Monday-Friday, June 24-28, 1:00-5:00

Location: Learning Gardens Laboratory

### **Professors' Contact Information:**

Dr. Sybil Kelley

503-725-5976-office; [sybilkel@pdx.edu](mailto:sybilkel@pdx.edu)

**Office hours:** By appointment-e-mail to schedule

**Office:** ED 504F

Dr. Dilafruz Williams

503-830-6071-office; [williadi@pdx.edu](mailto:williadi@pdx.edu)

**Office hours:** By appointment-e-mail to schedule

**Office:** ED 504W

Nancy Lapotin; Portland Public Schools' Science TOSA

971-533-2273 office; [nlapotin@pps.net](mailto:nlapotin@pps.net)

**Office hours:** By appointment-e-mail to schedule

**Office:** Portland Metro STEM Center

### **Course Description:**

Educators from various contexts and in various stages of professional development (in-service and pre-service teachers, extended-day teachers, informal science educators, etc.) work together to learn theory and best-practices of science and sustainability education, then put this understanding into practice by designing curriculum that utilizes learning gardens (at schools and/or community sites) as a rich context for STEM learning and teaching. Participants will specifically focus on developing standards and inquiry-based curriculum that integrates content, formative assessments, and experiential learning activities.

The purpose of this course is for teachers and graduate students to:

- Build professional learning communities among the entire group, spanning various schools and locations, that support the development of knowledge, skills, and dispositions necessary for reflective practice and action research (GSE 1.1, 2.2, 3.1, 3.3);
- Develop an understanding of theoretical frameworks for Science, Technology, Engineering, and Math (STEM) and Garden-based education (GBE) (GSE 2.1, 2.2, 3.1, 3.2, 3.3);

- Apply STEM education research and GBE theory into practice, through collaborative development of STEM-focused, integrated garden-based learning units (GSE 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3).

### Course Objectives:

Upon successful completion of this course you will:

1. Build professional relationships as co-learners and co-teachers with colleagues from various locations(GSE 1.1, 2.2, 3.3);
2. Become familiar with the new *Framework for K-12 Science Education* (Framework) (NRC, 2011) and the *Next Generation of Science Standards* (NGSS)(GSE 2.1, 2.2, 3.1, 3.2, 3.3);
3. Develop an understanding of garden-based educational theory and how it aligns with STEM education (GSE 2.1, 2.2, 3.1, 3.2, 3.3);
4. Identify appropriate strategies for differentiated instruction for diverse learners (GSE 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 4.1);
5. Work collaboratively with other teachers and educators to design integrated STEM units that support students' development of scientific understanding as described by research-based learning progressions outlined in the *Framework* and *NGSS* (GSE 1.2, 2.1, 2.2, 3.2, 3.3);
6. Gain experience developing STEM-focused, inquiry-oriented instructional units that utilize gardens as an integrating context for teaching and learning (GSE 2.1, 2.2, 3.1, 3.2, 3.3).
7. Identify appropriate, research-based formative assessment strategies that can inform teaching and help guide instructional practices (GSE 2.1, 2.2, 3.1, 3.2, 3.3, 4.1).

## ELP 510: Integrating STEM & Sustainability Education through Learning Gardens

Leadership for Sustainability Education (LSE)

Educational Leadership & Policy

Graduate School of Education

Portland State University

Summer 2013

*4 Credits*

*CRNs: 82348*

Monday-Friday, June 24-28, 8:30-12:15 & 1:00-4:45

Monday-Wednesday, July 1-3, 8:30-12:15 & 1:00-4:45

Location: Kelly, Lent, or Woodmere School/Learning Gardens Laboratory

### Professors' Contact Information:

Dr. Sybil Kelley

503-725-5976-office; [sybikel@pdx.edu](mailto:sybikel@pdx.edu)

**Office hours:** By appointment-e-mail to schedule

**Office:** ED 504F

Dr. Dilafruz Williams

503-830-6071-office; [williadi@pdx.edu](mailto:williadi@pdx.edu)

**Office hours:** By appointment-e-mail to schedule

**Office:** ED 504W

Nancy Lapotin; Portland Public Schools' Science TOSA  
971-533-2273 office; [nlapotin@pps.net](mailto:nlapotin@pps.net)

**Office hours:** By appointment-e-mail to schedule

**Office:** Portland Metro STEM Center

### **Course Description:**

This course brings together educators from various contexts and stages of professional development (in-service and pre-service teachers, extended-day teachers, informal science educators, etc.) to work together learning theory and best-practices of science and sustainability education. Each day, educators will work with K-6 students at one of three partnering SUN schools in outer SE Portland (Kelly, Lent, or Woodmere), collaboratively enacting a STEM program as part of a fun and engaging summer garden camp. In the afternoon, educators will build from the insights gained with students as they collaboratively design instructional units that utilizes learning gardens (at schools and/or community sites) as a rich context for STEM learning and teaching. Participants will specifically focus on developing standards and inquiry-based curriculum that integrates content, formative assessments, and experiential learning activities.

The purpose of this course is for teachers and graduate students to:

- Build professional learning communities among the entire group, spanning various schools and locations, that support the development of knowledge, skills, and dispositions necessary for reflective practice and action research (GSE 1.1, 2.2, 3.1, 3.3);
- Develop an understanding of theoretical frameworks for Science, Technology, Engineering, and Math (STEM) and Garden-based education (GBE) (GSE 2.1, 2.2, 3.1, 3.2, 3.3);
- Apply STEM education research and GBE theory into practice, through collaborative development of STEM-focused, integrated garden-based learning units (GSE 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3).

### **Course Objectives:**

Upon successful completion of this course you will:

a.m. and p.m.

13. Build professional relationships as co-learners and co-teachers with colleagues from various locations(GSE 1.1, 2.2, 3.3);
14. Gain experience and confidence working with diverse, “at-risk” students in a garden-based (out-of-school) setting (GSE 1.1, 1.2, 2.1, 2.2, 3.1);
15. Build proficiency utilizing gardens as a context for standards-based instruction (GSE 1.2, 2.1, 2.2, 3.1, 3.3);
16. Develop proficiency utilizing formative assessment strategies to identify students’ current understandings and to guide instruction (GSE 1.1, 2.1, 2.2, 3.1, 3.2, 3.3, 4.1).
17. Become familiar with the new *Framework for K-12 Science Education* (Framework) (NRC, 2011) and the *Next Generation of Science Standards* (NGSS)(GSE 2.1, 2.2, 3.1, 3.2, 3.3);
18. Develop an understanding of garden-based educational theory and how it aligns with STEM education (GSE 2.1, 2.2, 3.1, 3.2, 3.3);
19. Identify appropriate strategies for differentiated instruction for diverse learners (GSE 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 4.1);
20. Work collaboratively with other teachers and educators to design and implement integrated STEM units that support students’ development of scientific understanding as

- described by research-based learning progressions outlined in the *Framework* and NGSS (GSE 1.2, 2.1, 2.2, 3.2, 3.3);
21. Gain experience developing STEM-focused, inquiry-oriented instructional units that utilize gardens as an integrating context for teaching and learning (GSE 2.1, 2.2, 3.1, 3.2, 3.3).
  22. Identify appropriate, research-based formative assessment strategies that can inform teaching and help guide instructional practices (GSE 2.1, 2.2, 3.1, 3.2, 3.3, 4.1).

## **ELP 510: Integrating STEM & Sustainability Education Through Learning Gardens**

Leadership for Sustainability Education (LSE)  
Educational Leadership & Policy  
Graduate School of Education  
Portland State University  
Summer 2014  
*4 Credits*  
CRN: 81848

Thursday, June 19, 10:00-12:00 at Learning Gardens Laboratory  
Monday-Thursday, June 23-July 3, 8:30-2:15  
Location: Rigler and Vernon Schools

### **Professor's Contact Information:**

Dr. Sybil Kelley  
503-725-5976-office; [sybikel@pdx.edu](mailto:sybikel@pdx.edu)  
**Office hours:** By appointment-e-mail to schedule  
**Office:** ED 504F

### **Partnering Instructors:**

**Dr. Dilafruz Williams**  
503-830-6071-office; [williadi@pdx.edu](mailto:williadi@pdx.edu)  
**Nancy Lapotin;** Portland Public Schools'  
Science TOSA/Liaison to Portland Metro  
STEM Partnership  
971-533-2273 office; [nlapotin@pps.net](mailto:nlapotin@pps.net)

### **Course Description:**

This course brings together educators from various contexts and stages of professional development (in-service and pre-service teachers, extended-day garden educators, informal science educators, etc.) to work together learning theory and best-practices of science and sustainability education. Each day, educators will work with K-6 students at a partnering SUN school in NE Portland (Rigler or Vernon), collaboratively enacting a STEM program as part of a fun and engaging summer garden camp. In the afternoon, educators will build from the insights gained with students as they collaboratively design instructional units that utilize learning gardens (at schools and/or community sites) as a rich context for STEM learning and teaching. Participants will specifically focus on developing standards and inquiry-based curriculum that integrates content, formative assessments, and experiential learning activities.

The purpose of this course is for teachers and graduate students to:

- Build professional learning communities among the entire group, spanning various schools and locations, that support the development of knowledge, skills, and dispositions necessary for reflective practice and action research (GSE 1.1, 2.2, 3.1, 3.3);
- Develop an understanding of theoretical frameworks for Science, Technology, Engineering, and Math (STEM) and Garden-based education (GBE) (GSE 2.1, 2.2, 3.1, 3.2, 3.3);
- Apply STEM education research and GBE theory into practice, through collaborative development of STEM-focused, integrated garden-based learning units (GSE 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3).

### **Course Objectives:**

Upon successful completion of this course you will:

1. Build professional relationships as co-learners and co-teachers with colleagues from various locations(GSE 1.1, 2.2, 3.3/LSE 1, 3);
2. Gain experience and confidence working with diverse, “at-risk” students in a garden-based (out-of-school) setting (GSE 1.1, 1.2, 2.1, 2.2, 3.1/ LSE 2, 3, 4);
3. Build proficiency utilizing gardens as a context for standards-based instruction (GSE 1.2, 2.1, 2.2, 3.1, 3.3/ LSE 4);
4. Develop proficiency utilizing formative assessment strategies to identify students’ current understandings and to guide instruction (GSE 1.1, 2.1, 2.2, 3.1, 3.2, 3.3, 4.1/ LSE 4).
5. Become familiar with *A Framework for K-12 Science Education* (Framework) (NRC, 2011), the *Next Generation of Science Standards* (NGSS), and the *Oregon Environmental Literacy Plan* (GSE 2.1, 2.2, 3.1, 3.2, 3.3/ LSE 2, 4);
6. Develop an understanding of garden-based educational theory and how it aligns with STEM education (GSE 2.1, 2.2, 3.1, 3.2, 3.3/ LSE 2, 4);
7. Identify appropriate strategies for differentiated instruction for diverse learners (GSE 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 4.1/ LSE 3, 4);
8. Work collaboratively with other teachers and educators to design and implement integrated STEM units that support students’ development of scientific understanding as described by research-based learning progressions outlined in the *Framework* and *NGSS* (GSE 1.2, 2.1, 2.2, 3.2, 3.3/ LSE 3, 4);
9. Gain experience developing STEM-focused, inquiry-oriented instructional units that utilize gardens as an integrating context for teaching and learning (GSE 2.1, 2.2, 3.1, 3.2, 3.3/ LSE 4).
10. Identify appropriate, research-based formative assessment strategies that can inform teaching and help guide instructional practices (GSE 2.1, 2.2, 3.1, 3.2, 3.3, 4.1/ LSE 4).