

The completed and signed proposal should be submitted by the Dean’s Office to: [curriculumplanning@asu.edu](mailto:curriculumplanning@asu.edu).

Before academic units can advertise undergraduate certificates or include them in their offerings as described in the university catalogs, they must be recommended for approval by the Senate Curriculum and Academic Programs Committee and the University Senate, and be approved by the Executive Vice President and Provost of the University.

**Definition and minimum requirements:**

These are the minimum requirements for approval. Individual undergraduate certificates may have additional requirements.

An undergraduate certificate is a programmatic or linked series of courses from a single field or one that crosses disciplinary boundaries and may be free-standing or affiliated with a degree program. The certificate provides a structured and focused set of courses that can be used to enhance a student’s baccalaureate experience or professional development.

An undergraduate certificate program:

- Requires a minimum of 15 semester hours of which at least 12 semester hours must be upper division
- Requires a minimum grade of “C” or better for all upper division courses
- Consists of courses that must directly relate in whole or large part to the purpose of the certificate. Example: Geographic area certificates must include only courses specific to the title of the certificate, other than a non-English language
- Is cross disciplinary; or,
  - Certified by a professional or accredited organization/governmental agency; or,
  - Clearly leads to advanced specialization in a field; or,
  - Is granted to a program that does not currently have a major

**College/School/Institute:** Mary Lou Fulton Teachers College  
**Department/Division/School:** Division of Teacher Preparation - CELEMED  
**Proposed Certificate Name:** Environmental Education  
**Requested effective Date:** 2015-16  
**Delivery method:** On-campus only (ground courses and/or iCourses)

*Note: Once students elect a campus or On-line option, students will not be able to move back and forth between the on-campus and the ASU Online options. Approval from the Office of the Provost and Philip Regier (Executive Vice Provost and Dean) is required to offer programs through ASU Online.*

**Campus/Locations:**

Indicate all locations where this program will be offered.

Downtown Phoenix     Polytechnic     Tempe     West    Other:

**Proposal Contact**

**Name:** Cory Hansen      **Title:** Associate Professor, Interim Division Director  
**Phone number:** 602-543-6075      **Email:** Cory.Hansen@asu.edu

**DEAN APPROVAL(S)**

**This proposal has been approved by all necessary unit and College/School levels of review. I recommend implementation of the proposed organizational change.**

**College/School/Division Dean name:** Mari Koerner

**Signature**



**Date:** 10/15/2014

**College/School/Division Dean name:**

*(if more than one college involved)*

**Signature**

**Date:** / /20

*Note: An electronic signature, an email from the dean or dean’s designee, or a PDF of the signed signature page is acceptable.*

## 1. Overview

### A. Provide a brief description of the new certificate.

Environmental education teaches children and adults how to learn about and investigate their environment, and to make intelligent, informed decisions about how they can take care of their environment.

Environmental education is taught in traditional classrooms, in communities, and in settings like nature centers, museums, parks, and zoos. Learning about the environment involves many subjects—earth science, biology, chemistry, social studies, even math and language arts—because understanding how the environment works, and keeping it healthy, involves knowledge and skills from many disciplines.

Environmentally literate persons know:

- That their daily choices affect the environment,
- How those choices can help or harm the environment, and
- What they need to do—individually or as part of a community—to keep the environment healthy and sustain its resources, so that people enjoy a good quality of life for themselves and their children.

### B. This proposed certificate (check one):

- Is cross disciplinary; or
- Is certified by a professional or accredited organization/governmental agency; or,
- Clearly leads to advanced specialization in a field; or,
- Is granted to a program that does not currently have a major.

### C. Why should this be a certificate rather than a concentration or a minor?

The Environmental education certificate recognized by North American Association for Environmental Education requires 9 credits of Environmental Education coursework. A certificate is a better option for students to meet this requirement.

### D. Affiliation

If the certificate program is affiliated with a degree program, include a brief statement of how it will complement the program. If it is not affiliated with a degree program, incorporate a statement as to how it will provide an opportunity for a student to gain knowledge or skills not already available at ASU.

No, this certificate is not necessarily affiliated with a degree program. However, it does align nicely with formal and informal education degrees and those pursuing science majors.

A Certificate in Environmental Education may be a great way to get a head start on a desired career or specialty area such as science education and sustainability. This field blends scientific investigation, knowledge of ecology, the environment and its various ecosystems, and teaching. The courses focus on content as it is aligned to state science teaching standard, National Environmental Education standards and environmental best teaching practices as outlined by the North American Association for Environmental Education. These courses offer an in-depth look and experience in using the outdoors as a classroom which is unique to this certificate. It also exposes students to the wealth of organizations and resources that focus on environmental education skill and knowledge development. Depending on a student level of interest, there are a variety of possible applications for a certificate in environmental education (working as an informal educator – zoos, botanical gardens, etc. Leading science camps and outdoor education experiences, working as an educator- classroom teacher, science specialist, STEM School focus).

### E. Demand

Explain the need for the new certificate (e.g., market demand, interdisciplinary considerations).

Environmental educators translate the complex web of earth systems science, sustainability, environmental issues, and environmental change for the public. The demand for environmental education and training has shown a dramatic increase in the last few years, in both the public and private sectors. Although a certain amount is self-generated, the driving force behind this growth has been the recent proliferation of regulations, environmental standards and enforcement activities in the area of the environment. The creation or strengthening of governmental institutions in charge of environmental administration has also created a demand for professionals and technicians specializing in environmental activities. Educational standards now address more environmental education topics and content than

ever before. Environmental Education certification will offer educators the opportunity to meet the learning demands of the standards. Environmental Education certification will allow formal and informal educators the opportunity to demonstrate a specialty concentration of coursework and training. While Arizona does not presently require an Environmental Education certification to obtain a job as an informal educator (phoenix zoo, botanical gardens etc), it may soon follow suit of other states requiring informal educators to have the certification. In the meantime the Environmental Education certification will give a hiring edge to those who complete the requirements.

- F. Projected enrollment  
 What are enrollment projections for the first three years?

	<b>1<sup>st</sup> Year</b>	<b>2<sup>nd</sup> Year</b> (Yr. 1 continuing + new entering)	<b>3<sup>rd</sup> Year</b> (Yr. 1 & 2 continuing + new entering)
Number of Students (Headcount)	10	20	30

## 2. Support and Impact

- A. Faculty governance  
 Provide a supporting letter from the chair of the academic unit verifying that the proposed certificate has received faculty approval through appropriate governance procedures in the unit and that the unit has the resources to support the certificate as presented in the proposal, without impacting core program resources.

Attached at the end of the document.

- B. Other related programs  
 Identify other related ASU programs and outline how the new certificate will complement these existing ASU programs. (If applicable, statements of support from potentially-affected academic unit administrators need to be included with this proposal submission.)  
 Education Programs (elementary and secondary) - Environmental Education Certification recognizes an educator understanding and stewardship of Arizona and global natural resources and certified environmental educators have the knowledge and skills to be environmental education leaders in their community. This achievement benefits not only our community but the entire state and contributes to the future of Arizona’s environment and the USA. The certification combines new technologies with experiential learning, reflection and synthesis, enabling participants to link global issues and local environments.

- C. Letter(s) of support  
 Provide a supporting letter from each college/school dean from which individual courses are taken.

## 3. Academic Curriculum and Requirements

- A. Knowledge, competencies, and skills  
 List the knowledge, competencies, and skills (learning outcomes) students should have when they complete this proposed certificate. Examples of program learning outcomes can be found at (<http://www.asu.edu/oue/assessment.html>).

This certificate program introduces students to the history and progress of Environmental Education and Nature-Based Learning, which includes ecological concepts and principles, applied learning strategies, stewardship ethics and leadership and team-building skills.

Student Learning Outcomes - upon completion, students will be able to:

-investigate and communicate the relationship between environmental education, nature-based learning, ecosystem’s thinking, ecological literacy, stewardship, leadership and team-building and the environmental protection and stewardship of the Earth’s natural resources.

The Core Competencies ([http://www.naaee.net/files/core\\_competencies.pdf](http://www.naaee.net/files/core_competencies.pdf)) are based on the North America Association for Environmental Education Competencies which were adopted by the NAAEE Board in March 2006. Theme 1: Environmental Literacy; Theme 2: Foundations of Environmental Education; Theme 3: Professional Responsibilities of the Environmental Educator; Theme 4: Planning and Implementing EE; Theme 5: Fostering Learning; and Theme 6:

Assessment and Evaluation.

**B. Admissions criteria**

List the admissions criteria for the proposed certificate. If they are identical to the admission criteria for the existing major and degree program under which this certificate will be established, please note that here.

The certificate will be open to ASU students in any major and to non-degree students (i.e. working professionals) who seek to join the Peace Corps. The student must complete a Request to Add an Undergraduate Certificate and return it to the undergraduate academic advisor in Teachers College. Students will be able to take courses before they formally register for the certificate; however, they will be encouraged to complete the paperwork as soon as possible.

Potential certificate students not currently enrolled at ASU must apply and be admitted to ASU as non-degree students. Once students have been admitted, they are eligible to enroll in courses to complete the certificate program. Students must also complete a Request to Add an Undergraduate Certificate and return it to the undergraduate academic advising office in Teachers College. Students will be able to take courses before they formally register for the certificate; however, they will be encouraged to complete the paperwork as soon as possible.

Students will be admitted throughout the year.

**C. Curricular structure**

Provide the curricular structure for this certificate. Be specific in listing required courses and specify the total minimum number of hours required for the certificate.

**Required certificate courses**

Prefix	Number	Title	Is this a new Course?	Credit Hours
SCN	300	Foundations of Environmental Education	No	3
SCN	301	Ecology and Natural History of the Sonoran Desert	No	3
SCN	302	Outdoor Education	No	3
SCN	307	Learning from Nature: Biomimicry and STEM	Yes	3
<i>Section sub-total:</i>				12

**Elective certificate courses**

Prefix	Number	Title	Is this a new Course?	Credit Hours
EED	309	Project Learning Tree, Project WET, Project Wild, GLOBE, Outdoor Guide to the Universe, Outdoor Guide to Geology, Wild Aquatic, Flying WILD	No	1
SCN	303	Environmental Education Internship	No	3
SCN	304	Sonoran Desert Flora	Yes	3
SCN	305	Tropical Ecosystems of Costa Rica	Yes	3
SCN	494	Humanitarian Project for Educators	Yes	3
SCN	400	Sustainability Science for Teachers	No	3
SCN	401*	Sustainability Science, Technology and Society	Yes	3

\*Teacher Certification students will take SCN 400

*Section sub-total:* 3

**Other certificate requirements**

E.g. – Capstone experience, internship, clinical requirements, field studies, foreign language skills as applicable

Credit  
Hours

Section sub-total:

**Total minimum credit hours required for certificate 15**

D. Minimum residency requirement

How many hours of the certificate must be ASU credit? 15

E. New Courses

Provide a brief course description for each new course.

SCN 304 Sonoran Desert Flora

Plants and plant communities support much of the diversity of life in the Sonoran Desert and the surrounding regions. This course will cover the fundamentals of ecology from the perspective of plants including population, community and ecosystem ecology. This course will also include identification and classification of plants and plant communities in the Sonoran Desert region. This course incorporates practical field exercises designed to acquaint the student with plant community analysis, classification and description.

SCN 305 Tropical Ecosystems of Costa Rica

This course introduces students to language, culture and society of people and communities in Costa Rica. Students will also examine their own cultural perspectives and beliefs. The course focuses on four areas: 1) background on history and present day society of Costa Rica, introductory conversational Spanish for interacting with Costa Ricans; 2) living in Costa Rica, community, family and education: visiting families and private and public schools; 3) debriefing and reflecting on Costa Rican language and culture and 4) the location of Costa Rica, the rainforests impact on the world, climate, cultures and contributions to science.

SCN 307 Learning from Nature: Biomimicry and STEM

This course offers an introduction to biomimicry. Biomimicry is an emerging discipline that seeks to learn from nature to solve human problem. Biomimicry (from bios, meaning life, and mimesis, meaning to imitate) is a new discipline that studies nature's best ideas and then imitates these designs and processes to solve human problems. With an emphasis on getting outside and exploring the land around you, this course focuses on observing, appreciating and learning from nature and natural systems in our local environment.

SCN 401 Sustainability Science, Technology, and Society

This course is designed to introduce sustainability to those who plan to work with people ages 0-120 in nonprofit or government organizations, private educational or recreational settings, or as entrepreneurs in various fields. SCN 401 explores the challenges of sustaining human health and well-being on Earth due to human exploitation of natural resources and prepares students to think/engage critically with the world around them. The course seeks sustainable solutions through science, technology, and society acting at global and local levels; and uncovers diverse approaches used by scientists, scholars, and practitioners to study and assess human-environment interactions pertaining to sustainability challenges and solutions. This course provides a strong foundation in education through research, discussion, and critical thinking of current issues in human development, science, technology and society. Through the all-online delivery format of this course, students are provided with a variety of opportunities to explore their professional identity. Students gain skills in communicating virtually through a variety of written formats from email to formal critical analysis, which will prepare them for their future careers.

Note: All new required courses should be submitted in Curriculum Changemaker and ready for Provost's Office approval before this certificate is put on Curriculum and Academic Programs Committee (CAPC) agenda.

**4. Administration and Resources**
**A. Administration**

How will the proposed certificate be administered (including admissions, student advisement, retention, etc.)?

The program will be administered by the existing structures in Teachers College including the staff of Division 1 Teacher Education. Students will be advised by a faculty member designated as the Certificate Coordinator. Verification of completion of all requirements will be done by the Certificate Coordinator.

**B. Resources**

What are the resource implications for the proposed certificate, including any projected budget needs? Will new books, library holdings, equipment, laboratory space and/or personnel be required now or in the future? If multiple units/programs will collaborate in offering this certificate please discuss the resource contribution of each participating program. Letters of support must be included from all academic units that will commit resources to this certificate.

The courses that are being offered as a part of this certificate are already being offered by the college in other programs or as omnibus courses.

**C. Primary Faculty**

List the primary faculty participants regarding this proposed certificate. For interdisciplinary certificates, please include the relevant names of faculty members from across the University.

<b>Name</b>	<b>Title</b>	<b>Area(s) of Specialization as they relate to proposed certificate</b>
Molina Walters	Clinical Associate Professor	Science Education
Dianne McKee	Instructor	Science Education
Leanna Archambault	Associate Professor	Sustainability and Technology
Annie Warren	Program Director	Sustainability

**5. Additional Materials**

- A. Complete and attach the Appendix document.
- B. Provide one or more model programs of study (if appropriate).
- C. Attach other information that will be useful to the review committees and the Office of the Provost.

## APPENDIX

### OPERATIONAL INFORMATION FOR UNDERGRADUATE CERTIFICATES

(This information is used to populate the Degree Search/catalog website.

Please consider the student audience in creating your text.)

A. **Proposed Certificate Name:** Environmental Education

B. **Description (150 words maximum)**

The Mary Lou Fulton Teachers College certificate in environmental education is for both traditional and nontraditional educators and is designed to establish standards for professional excellence in environmental education. Environmental education is taught in traditional classrooms and as community programs such as those at nature centers, museums, parks and zoos. The course work required in the certificate increases the environmental literacy of future educators, fosters community leadership strategies, and provides practice in environmental education teaching methods. Students who complete the certificate are eligible to apply for the environmental education certificate recognized by the North American Association for Environmental Education.

C. **Contact and Support Information**

Building Name, code and room number: ( <a href="#">Search ASU map</a> )	ED 120
Program office telephone number: ( <i>i.e.</i> 480/965-2100)	480/965-5555
Program Email Address:	education@asu.edu
Program Website Address:	<a href="https://education.asu.edu">https://education.asu.edu</a>

D. **Program Requirements:** Provide applicable information regarding the program such as curricular restrictions or requirements, specific course lists, or academic retention requirements

This certificate requires 15 credit hours; 12 of which must be upper division. A “C” or better is required in all upper-division course work.

Required certificate courses (12 credit hours):

- SCN 300 Foundations of Environmental Education (3)
- SCN 301 Ecology and Natural History of the Sonoran Desert (3)
- SCN 302 Outdoor Education (3)
- SCN 307 Learning from Nature: Biomimicry and STEM (3)

Elective certificate courses (3 credit hours)

- EED 309 Project Learning Tree, Project WET, Project Wild, GLOBE, Outdoor Guide to the Universe, Outdoor Guide to Geology, Wild Aquatic, Flying WILD (1)
- SCN 303 Environmental Education Internship (3)
- SCN 304 Sonoran Desert Flora (3)
- SCN 305 Tropical Ecosystems of Costa Rica (3)
- SCN 494 Humanitarian Project for Educators (3)
- SCN 400\* Sustainability Science for Teachers (3)
- SCN 401 Sustainability Science, Technology and Society (3)

\*Teacher certification students will take SCN 400.

E. **Additional Admission Requirements** If applicable list any admission requirements (freshman and/or transfer) that are higher than and/or in addition to the university minimum undergraduate admission requirements.)  
Any degree seeking student at ASU may seek this certificate

F. **Delivery/Campus Information Delivery:** On-campus only (ground courses and/or iCourses)

*Note: Once students elect a campus or On-line option, students will not be able to move back and forth between the on-campus and*

*the ASU Online options. Approval from the Office of the Provost and Philip Regier (Executive Vice Provost and Dean) is required to offer programs through ASU Online.*

**G. Campus/Locations:**

Indicate **all** locations where this program will be offered.

Downtown Phoenix     Polytechnic     Tempe     West    Other:



 **CENTER FOR  
BIODIVERSITY OUTCOMES**  

---

**A R I Z O N A   S T A T E   U N I V E R S I T Y**

TO: Cory Cooper Hansen, Ph.D., Interim Director for Teacher Preparation  
Arizona State University at the West Campus  
Mary Lou Fulton Teachers College

FROM: Leah Gerber, Director, Center for Biodiversity Outcomes  
Arizona State University

DATE: March 25, 2015

SUBJECT: Support for Undergraduate Certificate in Environmental Education

The Center for Biodiversity Outcomes has no objection to the proposed Undergraduate Certificate in Environmental Education.

Please let me know if you require any additional information.

*Sean Hansen*

## Ann Keith

---

**From:** Cory Hansen  
**Sent:** Thursday, March 26, 2015 1:29 PM  
**To:** Ann Keith  
**Subject:** FW: Letter of Support

See the letter of support from New College in the email below!!

Cory Cooper Hansen, Ph.D.  
Interim Director for Teacher Preparation Associate Professor Arizona State University at the West Campus Mary Lou Fulton Teachers College  
Office: FAB S221  
Phone: 602 - 543 - 6075  
Cell: 602 - 616 - 7020

---

From: Roger Berger  
Sent: Thursday, March 26, 2015 12:48 PM  
To: Cory Hansen  
Cc: Roger Berger  
Subject: RE: Letter of Support

The School of Mathematical and Natural Sciences in New College has no objection to proposed Certificate in Environmental Education. The proposed certificate has little or no overlap with our BS in Environmental Science. Good luck with your new certificate.

\*\*\*\*\*

Roger L. Berger, Professor & Director  
School of Mathematical and Natural Sciences Arizona State University  
Office: FAB N151  
Email: roger.berger@asu.edu

-----Original Message-----

From: Cory Hansen  
Sent: Thursday, March 26, 2015 12:15 PM  
To: Roger Berger  
Subject: Letter of Support

Dear Dr. Berger,

I am hoping you can help me out with this letter of support.

What we need is a letter of support for a new Undergraduate Certificate in Environmental Education. I have attached a sample letter of support - or it can be as simple as an email from New College indicating,

"New College of Interdisciplinary Arts and Sciences has no objection to the proposed Undergraduate Certificate in Environmental Education."

I have attached a copy of the proposal so you can see what we have in mind.

I am sorry to say I need this by Friday - anyway you can help us out??

Thanks, Cory

Cory Cooper Hansen, Ph.D.

Interim Director for Teacher Preparation Associate Professor Arizona State University at the West Campus Mary Lou  
Fulton Teachers College

Office: FAB S221

Phone: 602 - 543 - 6075

Cell: 602 - 616 - 7020



## SUSTAINABILITY SCIENCE EDUCATION

TO: Cory Cooper Hansen, Ph.D., Interim Director for Teacher Preparation  
Arizona State University at the West Campus  
Mary Lou Fulton Teachers College

FROM: Annie Warren, Program Director  
Sustainability Science Education Project  
Biodesign Institute, Arizona State University

DATE: Tuesday, March 31, 2015

SUBJECT: Letter of support for a new Undergraduate Certificate in Environmental Education

The Biodesign Institute's Sustainability Science Education Project has no objection to the proposed Undergraduate Certificate in Environmental Education and the use of the SCN 401 course for this certificate. Should you have any questions, do not hesitate to contact me.

Warm regards,  
Annie

A handwritten signature in black ink, appearing to read 'AW'.

Annie Warren  
Program Director  
Sustainability Science Education Project  
Office: [\(480\) 965-3968](tel:4809653968) | Cell: [\(818\) 636-5321](tel:8186365321)