Fiscal Unit/Academic Org	School of Earth Sciences - D0656
Administering College/Academic Group	Arts and Sciences
Co-adminstering College/Academic Group	
Semester Conversion Designation	New Program/Plan
Proposed Program/Plan Name	Natural History Museum Curation Certificate
Type of Program/Plan	Undergraduate certificate program
Program/Plan Code Abbreviation	MUSEUM
Proposed Degree Title	Certificate in Natural History Museum Curation

Credit Hour Explanation

Program credit hour requirements		A) Number of credit hours in current program (Quarter credit hours)	B) Calculated result for 2/3rds of current (Semester credit hours)	C) Number of credit hours required for proposed program (Semester credit hours)	D) Change in credit hours
Total minimum credit hours required for completion of program				12	
Required credit hours offered by the unit	Minimum			0	
	Maximum			12	
Required credit hours offered outside of the unit	Minimum			0	
	Maximum			12	
Required prerequisite credit hours not included above	Minimum			4	
	Maximum			9	

Program Learning Goals

Note: these are required for all undergraduate degree programs and majors now, and will be required for all graduate and professional degree programs in 2012. Nonetheless, all programs are encouraged to complete these now.

Program Learning Goals

- Upon completion,

  (1) learners will be better prepared to identify natural history specimens (minerals, fossils, plants, and animals), place the specimens in scientific context and recognize the scientific, historical, or other value of specimens
- (2) learners will be better prepared to curate natural history collections through preparation, cataloging, collections management, and preservation.
- (3) learners will be better prepared to seek museum funding, to manage a museum enterprise in a dynamic social context, and to engage in public outreach by various means including exhibition development.

Assessment

Assessment plan includes student learning goals, how those goals are evaluated, and how the information collected is used to improve student learning. An assessment plan is required for undergraduate majors and degrees. Graduate and professional degree programs are encouraged to complete this now, but will not be required to do so until 2012.

Is this a degree program (undergraduate, graduate, or professional) or major proposal? No

Program Specializations/Sub-Plans

If you do not specify a program specialization/sub-plan it will be assumed you are submitting this program for all program specializations/sub-plans.

Pre-Major

Does this Program have a Pre-Major? No

Attachments

- Earth Sciences 4 certificates letter Fink.docx: Updated letter of support from the college

  (Letter from the College to OAA. Owner: Vankeerbergen,Bernadette Chantal)
- NMS Panel Cover letter for Earth Science Certificates.pdf: NMS Panel cover letter for ASCC

  (Other Supporting Documentation. Owner: Vankeerbergen,Bernadette Chantal)
- Certificate Proposal Museum Curation.pdf: program proposal, letter from Unit and S. Fink

  (Program Proposal. Owner: Panero,Wendy R)

Comments

- This is a certificate program, to be open to undergraduate and graduate students (see details in the proposal; this form's requirements do not permit indicating multiple types of certificates)

  10/24: responded to all requests *(by Panero,Wendy R on 10/24/2019 02:30 PM)*
- Please see 10-23 email *(by Vankeerbergen,Bernadette Chantal on 10/23/2019 02:45 PM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Panero,Wendy R	08/30/2019 03:11 PM	Submitted for Approval
Approved	Panero,Wendy R	08/30/2019 03:30 PM	Unit Approval
Approved	Haddad,Deborah Moore	08/30/2019 03:43 PM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	10/23/2019 02:45 PM	ASCCAO Approval
Submitted	Panero,Wendy R	10/24/2019 02:30 PM	Submitted for Approval
Approved	Panero,Wendy R	10/24/2019 02:33 PM	Unit Approval
Approved	Haddad,Deborah Moore	10/24/2019 06:02 PM	College Approval
Pending Approval	Jenkins,Mary Ellen Bigler Hanlin,Deborah Kay Oldroyd,Shelby Quinn Vankeerbergen,Bernadette Chantal	10/24/2019 06:02 PM	ASCCAO Approval

Proposal Submission Guidelines for Establishing a New Certificate

1. Required Information

• Name of proposed certificate. Identify certificate type from certificate grid (*e.g.*, Type 2, standalone post-bachelor undergraduate certificate).

Natural History Museum Curation, type 1 (undergraduate academic certificate, embedded), type 2 (Undergraduate academic certificate, post-bachelor degree) and 3 (graduate academic certificate, stand alone (3a) or embedded (3b))

• Indicate whether the certificate will be delivered wholly on-line, wholly in-person, a combination, or with all hybrid courses.

In person delivery.

• Proposed implementation date.

Spring 2020

• Academic units (e.g., department, college) responsible for administering the certificate program.

Earth Sciences, College of Arts and Sciences

2. Rationale

• Describe the rationale/purpose of the certificate.

The certificate will provide both the disciplinary background as well as experience and skills in working in a museum. The certificate is targeted to students wishing to pursue a career in natural history museums.

A survey of recent postings for positions in natural history museums shows that most desire applicants to have the disciplinary expertise ranging from a BS, MS, to a PhD, where the BS-level positions are generally described as "curatorial assistant" or "outreach specialist," whereas positions with the title "curator" require a PhD. Most of these positions, even at the assistant level, require either curatorial or museum-based outreach experience. For example, position descriptions in current job postings include the following responsibilities and requirements:

> "Responsible for providing advisement and assistance for the systematic arrangement of specimens within the collections of assignment. Responsible for working with the collections management staff to integrate and treat research collection materials. Responsible for following established best-practices in the legal acquisition, accession, and curation of newly acquired specimens within the collections of assignment." Cleveland Museum of Natural History, Assistant/Associate Curator of Vertebrate Paleontology (PhD required)

> "The curator is further expected to integrate their understanding of minerals and earth science with the three outward-facing themes of the museum: the history of life and earth systems, the interconnected of life and earth systems, and the future of life and earth systems. Living and non-living earth systems interact profoundly. The curator is expected to collaborate with education, programming and exhibit staff to engage scholars, the public, and policy-makers towards a more sustainable place for humans in the earth's systems." Carnegie Museum of Natural History, Curator of Mineral and Earth Sciences (PhD required)

> "…knowledge and experience in the identification and classification of geological specimens, in particular mineral specimens. … knowledge and experience in managing a Museum Collection, and knowledge of national and international principles, practices, standards and ethics around management of such a collection" Museums Victoria, Collections Manager, Geosciences (BS required)

• Identify a likely source of student demand for the proposed certificate, and provide one or two examples.

Students majoring in the natural sciences that seek employment in research but not academia, as well as public outreach and education without working in a traditional classroom setting. This certificate program is part of the School of Earth Sciences' efforts to provide clear pathways for career training within the natural sciences.

In a recent search of job listings on Indeed.com (July 19, 2019), we found 319 open listings for museum curatorial positions in the United States, although not all of them were specifically for natural history museums. During each of the last 20 years, we have received requests, either from enrolled students or from prospective students, for course offerings in natural history museum curation studies at Ohio State. In the last 12 months alone, we have received such requests from six students.

• Provide the following statement: *Upon completion of the academic certificate in* <specify title>*, learners will be better prepared to. . .*" <list a maximum of 3 outcomes>.

Upon completion of the academic certificate in Natural History Museum Curation,

(1) learners will be better prepared to identify natural history specimens (including minerals, fossils, plants, and animals), place the specimens in scientific context, and recognize the scientific, historical, or other value of specimens.
(2) learners will be better prepared to curate natural history collections through preparation, cataloging, collections management, and preservation.
(3) learners will be better prepared to seek museum funding, to manage a museum enterprise in a dynamic social context, and to engage in public outreach by various means including exhibition development.

3. Relationship to Other Programs / Benchmarking

• Identify any overlaps with other programs or departments within the university. Append letters of concurrence or objection from related units.

The certificate overlaps with the BS in Earth Sciences. Students majoring in biology and other natural science fields will find they will be able to use their course credits to fulfill parts of the requirements.

• Indicate whether this certificate or a similar certificate was submitted for approval previously.

This is a new proposal, no such certificate proposal has been submitted for approval previously.

Explain at what stage and why that proposal was not approved or was withdrawn.

• Identify similar programs at other universities in Ohio or in the United States and their levels of success.

There are few full degree programs specifically for the curation of natural history collections in the US, or indeed the world. There are no such programs in Ohio. What we are proposing is essentially unique in the United States, but our proposed program includes some content that is similar to that in programs elsewhere.

Among universities and colleges in Ohio, Kent State University offers a concentration (pathway) leading to a degree in Information Science (digital technology). The concentration does not include disciplinary study of, or practical experience with, natural history collections.

https://www.kent.edu/sites/default/files/file/Museum%20Studies%20Pathway.pdf

Ohio University, Athens, offers a Museum Studies Certificate through the School of Art and Design. The university does not have a natural history museum, or a certificate in natural history museum curation.

https://www.ohio.edu/fine-arts/art/museum-studies-certificate

Ohio Northern University offers an undergraduate Public History minor to help prepare students for work in museums, the National Park Service, state historical societies, and other public history careers.

https://www.onu.edu/arts_sciences/history_politics_and_justice/areas_of_study/public_historymuseum_studies

Among American universities the program most similar to that which we are proposing is hosted by the University of Colorado, Boulder. Their program includes an MS degree offering in Museum and Field Studies and a Professional Certificate.

MS degree in Museum and Field Studies (University of Colorado, Boulder):

https://www.colorado.edu/cumuseum/mfs

Professional Certificate (University of Colorado, Boulder):

https://www.colorado.edu/cumuseum/graduate-program/about-program/professional-certificate

This is a 12 credit-hour certificate plus a 75-hour internship.

Some colleges or universities in the United States offer general BA or MA programs in museum studies, which may include natural history collections. Examples:

Earlham College (Indiana) offers an undergraduate minor in Museum Studies, operated cooperatively by the History, Geology, Biology, and Art departments.

https://earlham.edu/academics/programs/museum-studies/

State University of New York, Buffalo State, offers an MA degree in Museum Studies through the History and Social Sciences Education Department.

https://suny.buffalostate.edu/programs?bpid=522

George Washington University offers an MA degree in the Field of Museum Studies. Content areas are in disciplines such as American studies, anthropology, biological science, history, art history, or an appropriate interdisciplinary combination.

http://bulletin.gwu.edu/arts-sciences/museum-studies/ma/

Florida State University, Tallahassee, offers a graduate-level certificate in Museum Studies through an interdepartmental program. The program is open to graduate students enrolled in any FSU department.

https://hps.fsu.edu/students/museum-studies-certificate

https://classics.fsu.edu/programs/graduate-program/museum-studies

The Johns Hopkins University offers online degree or certificate options in museum studies. They are an MA degree in Museum Studies, an MA degree in Cultural Heritage Management, and a Graduate Certificate in Digital Curation.

https://landing.advanced.jhu.edu/museum-studies?

Most universities that offer programs in Museum Studies are focused on the arts and art history, and some such as the University of Florida, offer the flexibility for a student to concentrate studies in another disciplinary area while earning an MA degree or a Graduate Certificate in Museum Studies.

https://arts.ufl.edu/academics/art-and-art-history/programs/museum-studies/

4. Student Enrollment

• Indicate the number of students you anticipate will choose to pursue this certificate.

We anticipate initial enrollment to be modest, initially enhancing the experience and work preparation for undergraduate and graduate students in the earth sciences and EEOB, entomology, and related fields, limited by access to the availability of internships in the Orton Geological Museum and the Museum of Biological Diversity. However, a 5-year goal of the strategic plan for the Orton Geological Museum is to establish partnerships with other museums and research centers. To do this, the museum must have the collections catalogued and digitized, which will be an outgrowth of the initial efforts of the proposed 5501 course. Such partnerships will open up internship options to museums at Ohio State (e.g. Museum of Biological Diversity), in Columbus (e.g. COSI, Ohio History Connection) as well as in the region (e.g. Cincinnati Museum Center, Cleveland Museum of Natural History), allowing for the expansion of the program.

5. Curricular Requirements

• Provide ASC certificate advising sheet (see Appendix 5).

• List the courses (department, title, credit hours, description) which constitute the requirements and other components of the certificate. If any courses have prerequisites, please indicate so. Indicate which courses are currently offered and which will be new. When new course requests are submitted through curriculum.osu.edu, indicate that those course requests are being submitted as part of a new certificate proposal. As much as possible, the curriculum committees will review the course requests in conjunction with the certificate proposal.

Course Number	Course Name	Credit Hours	Prereqs.
All students take 6-8 credit hours of courses that provide in-depth knowledge of the identification and classification of natural samples in their broader scientific context. Additional courses may be			

approved from other disciplines, where approval will be contingent upon providing hands on experience in the identification and classification of natural samples. Students with demonstrated knowledge of the identification and classification of natural samples at the advanced undergraduate level may instead replace up to 6 credit hours with additional internship and museum curatorial practice/management hours.			
EARTHSC 4421	*Earth Materials:* Internal and external symmetry of minerals; relationship of physical properties to crystal structure; introduction to modern and traditional identification methods; sight identification of about 30 minerals.	3	Chem 1210
EARTHSC 4423	*Introductory Petrology:* Origin, occurrence, association, and mineral composition of the common rocks; laboratory includes work by megascopic and microscopic methods.	3	EARTHSC 1100, 1121, OR 1200; AND 4421
EARTHSC 4501	*Paleontology:* Fundamentals of paleontology and processes responsible for the fossil record. Application of paleontology to geology, evolutionary studies, paleoclimatology, paleoenvironmental reconstruction.	4	EARTHSC 1122 or 2122 & 3 cr hrs in bio sciences
EARTHSC 4502	*Stratigraphy and Sedimentation:* Principles of, and procedures in, stratigraphy and sedimentation, illustrated by field and laboratory studies of sedimentary rocks.	4	EARTHSC 1100, 1121, OR 1200; AND EARTHSC 1122 or 2122
EEOB 2210	*Biodiversity of Ohio – Plants:* A lecture and field course in identifying common Ohio plants; emphasis on taxonomic principles, use of keys and manuals, and field recognition of plants; includes some Saturday field trips.	2	4 sem. credit hours in biology
EEOB 2220	*Biodiversity of Ohio – Birds:* The general biology of birds with emphasis on their natural histories and field identification of local species.	2	4 sem. credit hours in biology
EEOB 3310	*Evolution:* Basic conceptual issues and processes in evolution with an emphasis on the ecological basis of adaptation and consequences of natural selection.	4	BIO 1114(H)
EEOB 3320	*Organismal Diversity:* A survey of organismal diversity and the evolutionary relationships between and within major groups of organisms. Class is laboratory based.	3	EEOB 3310
EEOB 4210	*Focused Study of Ecology and Evolution – Vertebrates:* Analysis of the anatomical, physiological, behavioral, and ecological characteristics of the major vertebrate groups.	2	EEOB 3310
EEOB 4220	*Focused Study of Ecology and Evolution – Mammals:* Mammals of the world, their natural history, distribution, taxonomy, and major anatomical and physiological adaptations; study of local species emphasized in lab.	3	EEOB 3310
EEOB 4230	*Focused Study of Ecology and Evolution – Invertebrates:* Analysis of the anatomical, physiological, behavioral and ecological characteristics of the major invertebrate groups.	2	EEOB 3310

Course Number	**Course Name**	**Credit Hours**	**Prereqs.**
All students complete at 3-6 credit hours of the following, providing museum internship experience.			

EARTHSC 5191.01 (proposed course)	*Museum Internship:* Formal, independent study and practical training in a natural history museum. Students become acquainted with the research, teaching, and outreach activities of a museum, and enhance their knowledge of resources, research methodologies, curatorial procedures, exhibit development, institutional culture, and work environment.	3-6	Jr standing or above; and permission of instructor.
EEOB 5610	*Translating Evolution:* Hands-on study of the theory and practice of informal science education, with an emphasis on the translation of concepts and research on evolutionary biology to non-specialist audiences.	3	EEOB 3310 or Bio 1114 + 4 additional credits in biology

Course Number	**Course Name**	**Credit Hours**	**Prereqs.**
All student complete at least 3 credit hours of the following, providing curatorial and/or museum management experience			
EARTHSC 5501 (proposed course)	*Museum Data Curation*: An introduction to modern curatorial practice in a museum of natural samples.	3	Permission of instructor
ARTEDUC 5671	*Organizational Leadership in the Nonprofit Arts:* Students will be assisted in enhancing their knowledge and ability to take responsible leadership roles in non-profit arts organizations and as a major constituent of public arts agencies.	3	
ARTEDUC 5682	*Nonprofit Arts Institution Governance and Board Leadership:* Research-based, practical exploration of nonprofit boards critically examines governance policies and practices; specifically focusing on management, board and staff relations and issues of accountability.	3	
ARTEDUC 5685	*Arts/Cultural Organizations: Resource Management & Revenue Streams:* An analysis of current issues in resource management and revenue streams available to arts & cultural organizations, and its application to marketing and development practice.	3	
ARTEDUC 5686	*Cultural Program Design, Implementation, and Evaluation:* Research of program theory, design, and their application implementation.	3	
ARTEDUC 7748	*Museum Practicum:* An examination of the role of education in art museums through an in-depth experience in a museum setting.	3	

- State the minimum number of credits required for completion of the certificate.

  12-14 credits

• Indicate the number of semesters expected to complete the certificate. Confirm that courses are offered frequently enough and have the capacity to meet this expectation.

This certificate may be completed in 3 semesters, arising from the fact that the Earth Science disciplinary courses are offered annually.
The EEOB and ArtEd courses are not necessary to complete the sequence, yet offer a broader array of choices for students
EarthSc 5191.01 will be offered both fall and spring semesters; EarthSc 5501 will be offered spring and summer semesters.

• If applicable, describe existing facilities, equipment, and off-campus field experience and clinical sites to be used. Indicate how the use of these facilities, equipment, etc., will impact other existing programs.

Initially the collections and facilities of the Orton Geological Museum will form the primary support for the hands-on aspects of the Natural History Museum Curation program. The Orton Museum houses one of the largest university collections of minerals, rocks, and fossils in the United States, and this collection will be made available for instruction in curatorial methods and procedures. Most of the collection is physically located in Orton Hall, which has adequate space and infrastructure for teaching, for specimen processing, preparation and curation, and for exhibit preparation and installation. The Orton Museum is transitioning to a digital cataloging system utilizing state-of-the art digitizing and imaging technology. The Orton Museum has long enjoyed close links to the Orton Geological Library, which is also housed in Orton Hall, and its vast hard-copy and electronic resources. These library resources are an invaluable support for the curatorial work done in the Orton Museum. In addition, the Museum of Biological Diversity, with its extensive collections of Holocene (recent) biological organisms, and the Antarctic Rock Repository, with the world's largest collection of geological specimens from Antarctica, are expected to be used in teaching students curatorial methods and procedures. Students from EEOB and Entomology can benefit from learning curatorial methods in any of these collections facilities.

• For interdisciplinary certificates, describe the way in which advising and other student support will be provided.

• If applicable, describe additional university resources (including advisors and libraries) that will be required for the new certificate.

• Provide ASC completion sheet for certificates.

See below

• Provide semester-by-semester sample program.

An example two-year plan for BS student in Earth Sciences
Year 1: EarthSc 4421 (fall; offered annually) and EarthSc 4501 (spring; offered annually)
Year 2: EarthSc 5191.01 (fall; to be offered each semester) and EarthSc 5501 (to be offered annually)

Additional Graduate School Guidelines

- Students must be admitted into a graduate certificate program.
- Admitted students must meet the minimum admission requirements of the Graduate School.
- Certificates are administered by a graduate studies chair and committee that are responsible for admission decisions.
- Proposals originate in a TIU following the TIU's curricular approval process. Once submitted in curriculum.osu.edu and approval by the college, proposals will be routed automatically to the Graduate School for review. Once approved by the Graduate School, proposals are review by the Council on Academic Affairs (CAA).
- A letter of support from the college dean or associate executive dean must accompany the proposal.
- If a graduate non-degree student is admitted to a graduate certificate program, no more than four hours of semester graduate credit accumulated while in this non-degree classification may be counted toward the certificate.

COLLEGE OF ARTS AND SCIENCES
THE OHIO STATE UNIVERSITY

TYPE 1B, 2, 3 NATURAL HISTORY MUSEUM CURATION CERTIFICATE (MUSEUM-CT)

Coordinating Advisor: Professor Ashley Griffith, 381 Mendenhall Labs, Columbus, OH 43210; griffith.233@osu.edu

The 12-14 credit hour Natural History Museum Curation Certificate will prepare students for employment as a museum curator or curatorial assistant. The certificate is designed to provide both disciplinary expertise and curatorial training in museum curation.

Disciplinary courses (6-8 credits):

- **EARTHSC 4421**: Earth Materials (3)
- **EARTHSC 4423**: Introductory Petrology (3)
- **EARTHSC 4501**: Paleontology (4)
- **EARTHSC 4502**: Stratigraphy and Sedimentation (4)
- **EEOB 2210**: Biodiversity of Ohio – Plants (2)
- **EEOB 2220**: Biodiversity of Ohio – Birds (2)
- **EEOB 3310**: Evolution (4)
- **EEOB 3320**: Organismal Diversity (3)
- **EEOB 4210**: Focused Study of Ecology and Evolution – Vertebrates (2)
- **EEOB 4220**: Focused Study of Ecology and Evolution – Mammals (3)
- **EEOB 4230**: Focused Study of Ecology and Evolution – Invertebrates (2)

Students with demonstrated knowledge of the identification and classification of natural samples at the advanced undergraduate level may instead replace up to 6 credit hours with additional internship and museum curatorial practice/management hours.

A museum internship (3 credits minimum; 6 credits maximum):

- **EARTHSC 5191.01**: Museum Internship (3-6)
- **EEOB 5610**: Translating Evolution (3)

Curatorial and/or museum management experience (3 credits minimum):

- **EARTHSC 5501**: Museum Data Curation (3)
- **ARTEDUC 5671**: Organizational Leadership in the Nonprofit Arts (3)
- **ARTEDUC 5682**: Nonprofit Arts Institution Governance and Board Leadership (3)
- **ARTEDUC 5685**: Arts/Cultural Organizations: Resource Management & Revenue Streams (3)
- **ARTEDUC 5686**: Cultural Program Design, Implementation, and Evaluation (3)
- **ARTEDUC 7748**: Museum Practicum (3)

Natural History Museum Curation Certificate program guidelines

The following guidelines govern the Natural History Museum Curation Certificate. Required for certificate:

Credit hours required: 12-14 credit hours.

Overlap with a major

- The certificate must be in a different subject than the major.
- Max 50% overlap with degree program (i.e. major, minor, other certificate, or GE)

Grades required

- Minimum C- for a course to be listed on the certificate.
- Minimum 2.00 cumulative point-hour ratio required for the certificate.

X193 credits: Not permitted.

Certificate Completion: If the certificate is not complete on the DAR, the student must consult with the College of Arts and Sciences Coordinating Advisor.

Filing the certificate program form: The certificate program form must be filed at least by the time the graduation application is submitted to a college/school counselor.

Changing the certificate: Once the certificate program is filed in the college office, any changes must be approved by the College of Arts and Sciences Coordinating Advisor.

School of Earth Sciences undergraduate advisor
Dr. Karen Royce royce.6@osu.edu 614-292-6961

School of Earth Sciences graduate advisor
Professor Steve Lower, 084 Orton Hall, lower.9@osu.edu; 614-292-1571

COLLEGE OF ARTS AND SCIENCES
THE OHIO STATE UNIVERSITY

TYPE 1B, 2, 3 NATURAL HISTORY MUSEUM CURATION CERTIFICATE (MUSEUM-CT)

Student: _____

Other degree programs (Majors, minors, certificate): _____

Course	Credit Hours	Semester Completed	Overlap with other major, minor, other certificate program or GE?
Minimum 6 credit hours disciplinary courses			
Museum Internship (3-6 credit hours)			
Curatorial and/or museum management experience *(minimum 3 credit hours)*			

Total Credit hours: _____ (minimum 12)

Credits double counted with major, minor, other certificate program, or GE:
_____ (maximum 50%)

Advisor's signature _____

Disciplinary courses (6-8 credits):

- **EARTHSC 4421**: Earth Materials (3)
- **EARTHSC 4423**: Introductory Petrology (3)
- **EARTHSC 4501**: Paleontology (4)
- **EARTHSC 4502**: Stratigraphy and Sedimentation (4)
- **EEOB 2210**: Biodiversity of Ohio – Plants (2)
- **EEOB 2220**: Biodiversity of Ohio – Birds (2)
- **EEOB 3310**: Evolution (4)
- **EEOB 3320**: Organismal Diversity (3)
- **EEOB 4210**: Focused Study of Ecology and Evolution – Vertebrates (2)
- **EEOB 4220**: Focused Study of Ecology and Evolution – Mammals (3)
- **EEOB 4230**: Focused Study of Ecology and Evolution – Invertebrates (2)

Students with demonstrated knowledge of the identification and classification of natural samples at the advanced undergraduate level may instead replace up to 6 credit hours with additional internship and museum curatorial practice/management hours.

A museum internship (3 credits minimum; 6 credits maximum):

- **EARTHSC 5191.01**: Museum Internship (3-6)
- **EEOB 5610**: Translating Evolution (3)

Curatorial and/or museum management experience (3 credits minimum):

- **EARTHSC 5501**: Museum Data Curation (3)
- **ARTEDUC 5671**: Organizational Leadership in the Nonprofit Arts (3)

- **ARTEDUC 5682**: Nonprofit Arts Institution Governance and Board Leadership (3)
- **ARTEDUC 5685**: Arts/Cultural Organizations: Resource Management & Revenue Streams (3)
- **ARTEDUC 5686**: Cultural Program Design, Implementation, and Evaluation (3)
- **ARTEDUC 7748**: Museum Practicum (3)

THE OHIO STATE UNIVERSITY

College of Arts and Sciences

School of Earth Sciences

275 Mendenhall Laboratory
125 South Oval Mall
Columbus, OH 43210-1398

614-292-2721 Phone
614-292-7688 Fax

earthsciences@osu.edu
www.earthsciences.osu.edu

August 30, 2019

To ASCC and CAA members:

I am writing to document the School of Earth Science's strong endorsement of five new certificate programs proposed as part of their substantial revision of the Earth Sciences BS program:

- Certificate in Natural History Museum Curation (certificate types 1, 2, and 3: embedded undergraduate; post-bachelor undergraduate; and graduate certificate (both embedded and stand-alone)).
- Certificate in Petroleum Geology (certificate types 1, 2, and 3, as above).
- Certificate in Hydrology (certificate types 1, 2, and 3, as above).
- Certificate in Marine Science (certificate types 1 and 3, as identified above).
- Certificate in Planetary Science (certificate type 1, as identified above).

All five of these certificates have been designed for in-person delivery at this time. Each certificate proposal (as well as the redesign of the Earth Sciences BS program) is the result of thoughtful and extensive assessment of the curriculum, student interest, and market appeal. These certificates are designed to complement a number of existing natural science programs (both graduate and undergraduate—so they utilize 5000-level dual-career courses), and they should also, in distinct ways, appeal to individuals who are in the workforce and have already earned Bachelor's degrees, to advance their careers and expand career opportunities.

Please feel free to contact me if you have any additional questions.

Sincerely,

Matthew R. Saltzman
Professor and Director
School of Earth Sciences

THE OHIO STATE UNIVERSITY

College of Arts and Sciences

Offices of the Associate
and Assistant Deans

114 University Hall
230 North Oval Mall
Columbus, OH 43210

614-292-1667 Phone
asc.osu.edu

August 29, 2019

To ASCC and CAA members:

I am writing to document the College of Arts and Sciences' strong endorsement of four new certificate programs coming out of the School of Earth Sciences as part of their substantial revision of the Earth Sciences BS program:

- Certificate in Natural History Museum Curation (certificate types 1, 2, and 3: embedded undergraduate; post-bachelor undergraduate; and graduate certificate (both embedded and stand-alone)).
- Certificate in Petroleum Geology (certificate types 1, 2, and 3, as above).
- Certificate in Hydrology (certificate types 1, 2, and 3, as above).
- Certificate in Marine Science (certificate types 1 and 3, as identified above).

All four of these certificates have been designed for in-person delivery at this time. Each certificate proposal (as well as the redesign of the Earth Sciences BS program) is the result of thoughtful and extensive assessment of the curriculum, student interest, and market appeal. These certificates should complement a number of existing natural science programs (both graduate and undergraduate—so they utilize 5000-level dual-career courses), and they should also, in distinct ways, appeal to individuals who are in the workforce and have already earned Bachelor's degrees, to advance their careers and expand career opportunities.

The college of Arts and Sciences—as well as the Ohio Department of Higher Education and the State legislature--have been encouraging our departments to explore opportunities to develop certificate programs, and the School of Earth Sciences' proposals are exemplary. They address both our college's enrollment goals and our state's workforce enhancement goals.

Sincerely,

THE OHIO STATE UNIVERSITY

Steven Fink

Associate Executive Dean, College of Arts and Sciences
114 University Hall, 234 North Oval Mall, Columbus, OH 43210
614.292.6868 Office / 614.247.7498 Fax

Fink.5@osu.edu

THE OHIO STATE UNIVERSITY

College of Arts and Sciences

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August 29, 2019

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- Certificate in Hydrogeology (certificate types 1, 2, and 3, as above).
- Certificate in Marine Science (certificate types 1 and 3, as identified above).

All four of these certificates have been designed for in-person delivery at this time. Each certificate proposal (as well as the redesign of the Earth Sciences BS program) is the result of thoughtful and extensive assessment of the curriculum, student interest, and market appeal. These certificates should complement a number of existing natural science programs (both graduate and undergraduate—so they utilize 5000-level dual-career courses), and they should also, in distinct ways, appeal to individuals who are in the workforce and have already earned Bachelor's degrees, to advance their careers and expand career opportunities.

The college of Arts and Sciences—as well as the Ohio Department of Higher Education and the State legislature--have been encouraging our departments to explore opportunities to develop certificate programs, and the School of Earth Sciences' proposals are exemplary. They address both our college's enrollment goals and our state's workforce enhancement goals.

Sincerely,

THE OHIO STATE UNIVERSITY

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October 17, 2019

Alison Crocetta
Chair, ASCC

Dear Alison,

The NMS Panel of the ASCC reviewed and discussed the following Certificates at the regular NMS panel meeting on September 23, 2019.

Certificate in Hydrogeology:

Ohio State has a significant strength in hydrogeologic sciences, with additional strengths in environmental engineering, environmental sciences, soil science, and contaminant transport, across several colleges. This new certificate will clarify to students, graduate schools, and employers that the student engaged in a coherent set of undergraduate coursework to prepare the student to work or do research in the area of hydrogeology. The certificate also includes the course work for students to meet the educational criteria for certification by the American Institute of Hydrology.

Certificate in Natural History Museum Curation:

The new certificate will provide both the disciplinary background as well as experience and skills in working in a museum. The certificate is targeted to students wishing to pursue a career in natural history museums. Relevant positions generally require disciplinary expertise as well as curatorial or museum-based outreach experience. Hence, the proposed certificate will significantly improve the competitiveness of students for this type of positions.

Certificate in Marine Science:

Many students majoring in Earth Science, EEOB, Zoology, Microbiology, Geography, Engineering, and SENR programs arrive at Ohio State with an interest in marine science. There is significant interest in marine science among undergraduate students, and significant expertise in marine science among the faculty at OSU. Since these faculty are dispersed across the university, there is no clear departmental home, but there is a clear center of gravity in ASC. The certificate in marine science will clarify to students, graduate schools, and employers that the student engaged in a coherent set of undergraduate coursework to prepare the student to pursue marine sciences as a career or in graduate school.

Certificate in Petroleum Geology:

The Certificate in Petroleum Geology, together with either the revised Geological Sciences and Geophysics subprograms of the Earth Sciences BS, will replace the prior Petroleum Geology and Geophysics subprogram. With a Certificate in Petroleum Geology, students will have a competitive advantage for beginning a career in the oil and gas industry or pursuing entrance into a top graduate degree program within the field of petroleum geoscience. The certificate is designed to enhance both critical thinking and the technical skills for practicing petroleum geoscience.

The four propose certificates are well designed and compelling in their justifications. The NMS panel unanimously approved all four proposed certificates with only minor recommendations and in one contingency (correction of a typo in the title of a certificate), that was satisfied in the resubmission.

The NMS Panel forwards the listed certificates to ASCC for approval.

Sincerely,

Dr. Harald Vaessin
Chair, NMS Panel of ASCC
Professor and Chair, Molecular Genetics