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FFORMAT 6

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REQUEST FOR CORE ORAL INTENSIVE DESIGNATOR

SUBMITTED BY:

Department	**Geology and Geophysics**	**College/School**	**CNSM**
Prepared by	**Patrick Druckenmiller**	**Phone**	**474-6954**
Email Contact	**psdruckenmiller@alaska.edu**	**Faculty Contact**	**P. Druckenmiller**

See http://www.uaf.edu/uafgov/faculty/cd for a complete description of the rules governing curriculum & course changes.

1. *COURSE IDENTIFICATION:*

Dept	GEOS	Course #	317	No. of Credits	2

COURSE TITLE	**Paleontological Research and Laboratory Methods**

Existing Course		New Course Pending Approval*	X

*Must be approved by appropriate Curriculum Council.)

2. *EMPHASIS DESIRED:* *(See Guidelines for Oral Intensive Designator)*

Group (medium or large class)	
Public (medium or large class)	
Public (small class)	X
Public (large class) "O/2"	

3. *CURRENT CATALOG DESCRIPTION AS IT APPEARS IN THE CATALOG: including dept., number, title and credits*

GEOS F317O Paleontological Research and Laboratory Methods
2 Credits Offered Spring Even-numbered years
Introduction to research methods in paleontology. This course covers the fundamentals of fossil preparation, digital techniques for imaging and analyzing paleontological data, and discusses the current theory and practice of curation of fossil material in a museum setting. Common techniques for presenting research results to a scientific and public audience are also covered, with an emphasis on oral presentations. Labs emphasize practical experiences in the methods and presentation of research.
Prerequisites: GEOS 101 and GEOS 112 or permission of the instructor. (1+3)

JUSTIFICATION FOR ACTION REQUESTED

The purpose of the department and campus-wide curriculum committees is to scrutinize course designator applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. Use as much space as needed to fully justify the proposed change and explain what has been done to ensure that the quality of the course is not compromised as a result.

The course is simultaneously being proposed as a new GEOS course Paleontological Research and Laboratory Methods (see Format 1 form). At present, students wishing to fulfill the oral-intensive requirement have only two other departmental courses from which to choose (GEOS F463O – Glacial and Periglacial Geology and GEOS F475 W, O – Presentation Techniques in the Geosciences). This course will provide additional choices to geoscience students and be directly relevant to the Paleontology Option proposed in the department. The course follows all of the suggested guidelines for a public small class (see syllabus) and adds a peer review component as well to involve the students in evaluation of the oral presentations. A peer review guide is attached, along with the syllabus.

The attached syllabus must clearly reflect the following basic elements for the **ORAL COMMUNICATION** emphasis requested. Please note them directly on the syllabus, using the corresponding letter. (See Guidelines in this manual.)

GROUP (medium or large class) (Regularly enrolling at least 12 students)

A 15% of the final grade based on oral communication
B 1 ongoing, integrated group project with 5-8 students
C 2 presentations (minimum of 5 minutes per member)
D Question & Answer period for both presentations
E Group and Individual grading
F Instructor Evaluation/Feedback on all presentations

PUBLIC (medium or large class) (Regularly enrolling at least 12 students)

A 15% of the final grade based on oral communication
B 3 presentations (minimum of 5 minutes each)
C Question & Answer period for both presentations
D Instructor Evaluation/Feedback on all presentations

PUBLIC (small class) (Regularly enrolling less than 12 students)

A 15% of the final grade based on oral communication
B 2 presentations of 20 minutes with Question & Answer **or**
3 presentations of 10 minutes with Question & Answer
C Instructor Evaluation/Feedback on all presentations

PUBLIC (large class) "O/2" (Regularly enrolling 20 or more students)

A 7.5% of the final grade based on oral communication
B 1 presentation (minimum of 5 minutes), **and**
C 1 presentation of 8-10 minutes with Question & Answer
D Instructor Evaluation/Feedback on all presentations

APPROVALS: See attached page for additional signatures.

	Date	
Signature, Chair, Program/Department of:		
	Date	9/30/11
Signature, Chair, College/School Curriculum Council for:	CNSm	
	Date	
Signature, Dean, College/School of:		

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

	Date	
Signature, Chair, Senate Core Review Committee		

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APPROVALS:

Signature, Chair, Program/Department of: Geology + Geophysics	Date	12/14/11
Signature, Chair, College/School Curriculum Council for: CNSM	Date	9/30/11
Signature, Dean, College/School of: CNSM	Date	12/14/11

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

Signature, Chair, Senate Core Review Committee	Date	

Syllabus: GEOS F317O
PALEONTOLOGICAL RESEARCH AND LABORATORY METHODS
2 Credits – Oral Intensive

Professor: Patrick S. Druckenmiller
Office: Museum of the North, Rm. 30 (by appointment only; must check in at front desk)
Phone: 474-6954
Email: psdruckenmiller@alaska.edu
Office hours: TBA or by appointment
TA: TBA
Office: TBA
Phone: TBA
Prerequisites: GEOS F101, GEOS F112, or permission of the instructor
Lectures and discussions: MUSEUM 151*
Labs: MUSEUM 151*:

*NOTE: In order to gain admittance to the museum classroom, you must enter at the main entrance and check in at the front desk.

Required Text: A textbook is not required for this class. Because a single work that covers all areas of this course does not exist, readings on pertinent topics will be provided by the instructor. A suggested general reference that covers some of the course topics is:

Green, Owen R. 2001. *A manual of practical laboratory and field techniques in palaeobiology*. Kluwer Academic Publishers, 560 pp.

Other required materials: A lab notebook and hand lens are recommended.

Course description: This course introduces students to the basic paleontological methods used in the profession to study and interpret the fossil record. Each week, the theoretical background for topics will be introduced in lecture, but this course is primarily intended to offer hands-on, practical experience in a variety of paleontological methods. We will learn the basics of fossil preparation, scientific illustration, and how to photograph macro- and microfossils using a digital SLR camera. We will also learn how to conduct more sophisticated forms of digital imaging of fossils by means of CT scans, surface laser scans, and scanning electron micrographs (SEM), and how to manipulate these data for presentation. The use of isotopic methods in paleontology will also be introduced. Because museum collections are major sources of data for most paleontological research, we will also learn the fundamentals of curation in an active museum research collection (the Earth Science Collection at the University of Alaska Museum), including how specimen data is organized and served to the scientific community through online databases. A primer on paleontological field methods (including one fieldtrip) will also be provided.

This course emphasizes oral communication. Sharing the results of research via oral presentations (and posters) to a professional and public audience is another important component of paleontology. In lecture we will discuss effective methods for oral presentations and provide opportunities to develop these skills in a relatively low-stress, friendly environment during special lab presentations (rather than in front of 300 of your peers at your first professional meeting!). **A, B.** *Two oral presentations are required and form 20% of your total grade*. The first presentation will simulate a professional conference in which you will be given 20 minutes for your talk, up to five of which may be used for answering questions. It will be recorded on video in order for you assess your presentation. The second presentation will simulate a classroom setting and will be approximately 30 minutes in duration, plus a question and answer period. Both presentations require the use of visual aids, including, but not limited to, PowerPoint or a similar application. **C.** Presentations will be evaluated not only by the instructor but also by your peers. A peer review guide will be provided. Thus you will have the opportunity to both critique, and be critiqued. Additional information regarding potential topics and format will be provided separately.

Course objectives: The primary objective of this course is to gain a theoretical framework and practical experience in paleontological research methods. Additionally, you will learn effective techniques for communicating the results of these methods to others. The major objectives of this course will be to: 1) understand and select an appropriate method for investigating paleontological questions; 2) learn about a variety of imaging techniques common to the discipline; 3) understand the role that museums play in preserving and serving paleontological data; and 4) prepare and deliver an effective oral presentation.

Course outcomes: We will strive to reach these objectives through lectures, laboratory exercises and individual projects. Upon completion of this course, students should be able to:

- assess and describe various methodologies available to address paleontological questions
- perform basic imaging methods necessary to present data in a variety of formats
- discuss the fundamentals of curation pertinent to museum-based research
- create, deliver and critique an oral presentation on a paleontological topic

Instructional methods: The course includes a lecture and lab component. Lectures will consist of presented material and discussions and will serve as an introduction to laboratory exercises. During lectures, questions and commentary are encouraged. When appropriate, readings will be provided to augment the lectures and/or serve as point of discussion during lectures and labs. A comprehensive final exam will be include both a written and practical component.

Labs are an integral part of this course, and are designed to provide students with an opportunity to gain real experience in paleontological research methods, including presentation techniques. A handout will accompany each lab. Most labs will include a topic-specific project aimed at providing a practical experience in each method (for example, creating a scientific illustration start to finish). *Unless stated otherwise, these projects are due at the start of lab the following week.* A field trip to the Permafrost Tunnel near Fox will occur late in the term as an exercise in collecting field data. The fieldtrip, including round trip transportation, will take the entire three-hour lab period.

Course policies: Attendance in both lecture and lab is **mandatory**. For this reason, 5% of the total grade will be based on regular lecture and lab attendance and participation. Students missing no more than one lecture will receive an A for attendance, those missing no more than 2 lectures or 1 lab will receive a B, etc. Participation in the oral presentation labs is mandatory. I expect students to arrive in class on time, and repeated and/or excessive tardiness will be treated as non-attendance. Make-up labs are allowed for legitimate excuses (illness, attending a conference, etc...) and can be scheduled with the instructor. Students are expected to conform to student code of ethic, as outlined in the UAF catalog. Plagiarism and cheating will not be tolerated and will be dealt with seriously.

Evaluation: Grading will be divided as follows:

Final Exam	15%
Oral presentation 1	10%
Oral presentation 2	10%
Lab Projects	60%
Attendance/Participation	5%
TOTAL	100%

Timely completion of assigned lab projects will be a major component of the final grade. 20 percent of the final grade will be based on the two oral presentations. The final exam will build on the entire semester and will be include both a written and lab practical component. Grading will be established on a curve using letter grades A, B, C, D, F. The letter grades (except F) may include a "+" or "-" to indicate that a student's level of performance is slightly higher or lower than that of the letter grade alone.

Support Services: All efforts will be made by the instructor to assist students seeking support in this class, either during regular office hours or by appointment. If needed, the instructor will assist the student in arranging additional support, including ASUAF tutoring services (474-7355), or through other instructors on campus.

Disabilities Services: The Office of Disability Services implements the Americans with Disabilities Act (ADA) and ensures that UAF students have equal access to the campus and course materials. I will work with the Office of Disability Services (474-7043) to provide reasonable accommodation to students with disabilities. Please let me know at the start of the course if accommodations should be provided.

LECTURE AND LAB SCHEDULE

Date	Topic
1/25	Lect. 1: Introduction and goals; paleontology as a discipline
1/26	**Lab 1: Fossil preparation I**
2/1	Lect. 2: Conservation methods in paleontology
2/2	**Lab 2: Fossil preparation II**
2/8	Lect. 3: Preparing scientific figures/illustrations
2/9	**Lab 3: Photographing macrofossils in the field and lab**
2/15	Lect. 4: Elements of an oral presentation I
2/16	**Lab 4: Light microscopy and microphotography**
2/22	Lect. 5: Elements of an oral presentation II
2/23	**Lab 5: The art of scientific illustration**
2/29	Lect. 6: Scientific descriptions; Codes of Nomenclature
3/1	**Lab 6: Fossil identification and description**
3/7	Lect. 7: Museum resources I: Curation
3/8	**Lab 7: Oral presentations I: professional meeting format (with video)**
3/12-16	NO CLASSES – SPRING BREAK
3/21	Lect. 8: Museum resources II: Paleontological databases; theory and practice
3/22	**Lab 8: ARCTOS primer: using an online database to enter and retrieve data**
3/28	Lect. 9: Fundamentals of preparing a poster
3/29	**Lab 9: Preparing a poster**
4/4	Lect. 10: Methods for imaging fossils – SEM, CT, and other acronyms
4/5	**Lab 10: Manipulating and interpreting CT images**
4/11	Lect. 11: Isotopic analysis in paleontology
4/12	**Lab 11: Exercise at UAF Advanced Instrumentation Lab**

4/18	Lect. 12: Recording data in the field
4/19	**Lab 12: Collecting field data; field trip to the Permafrost Tunnel**
4/25	Lect. 13: Other methods and future trends in paleontology
4/26	**Lab 13: Oral presentations II: classroom format**
5/2	Lect. 14: Fossils as a public resource; legality and philosophy
5/3	**Lab 14: Oral presentations II: classroom format**
5/9-12	**FINAL EXAMS**

GEOS F3170

Paleontological Research and Laboratory Methods

*PRESENTER:*_____

CONTENT:

1. Was sufficient background information provided to enable comprehension of the scope and significance of the work?

2. Was the presentation pitched correctly for the intended audience (a general paleo audience)?

3. Was the talk well organized? Did it flow well?

4. Was there appropriate balance to the presentation (Introduction; Body of the Talk; Conclusions)?

MECHANICS OF DELIVERY:

5. Was the talk presented in a clear, audible and well-modulated voice?

6. Was the presentation delivered with energy and enthusiasm?

7. Was the pace of the talk appropriate for adequate comprehension?

8. Did the talk end on time and allow sufficient time for questions?

9. Were any distracting mannerisms displayed that the speaker should be aware of?

10. Were answers to questions adequate, pithy and succinct?

VISUAL AIDS:

11. Were the images associated with the talk clear and of high and consistent quality?

12. Was sufficient effort put into the visual aids to assist in understanding the topic at hand?

13. Were visual aids used effectively (that is, only when needed), or were they at times distracting because the speaker and the current slide were not always focused on the same issue?

QUESTION AND ANSWER:

14. How effective was the presenter in answering questions?

GENERAL COMMENTS:

(Please provide constructive criticism, i.e., how could the talk be improved?).