

Fall 2007

Volume 1, Issue 1

Paleobiology

Study of the evolutionary history of living and fossil organisms.

St. Norbert College/ 920-403-3199

Why study paleobiology?

By studying paleobiology and learning about the interaction between the environment and past organisms, we can learn more about ourselves.



Starting Out: Course Description

This course is designed to prepare you for upper level courses in biology. As an interdisciplinary science, paleobiology combines knowledge from paleontology, biology, geology, chemistry and physics. This gives you an opportunity to apply basic knowledge from these fields to real-world problem situations.

This is a particularly valuable course for those of you who pursue graduate

studies. As we explore various topics in paleobiology, you will be developing your critical thinking skills and ability to apply the scientific method.

The lab is project based. You will be developing your skills in scientific reading, research, and presentation.

Collaboration is an important part of successful science today. Following that model, the

course is structured using a team-based learning format (see below) to ensure that you complete the course with the ability and confidence to apply knowledge gained.

Course objectives are to:

- Define a species paleontologically and biologically.
- Examine a theory about the evolution of a particular structure and present evidence in support of it.

See page 3 for more.

Team-Based Learning

We will be using team-based learning (TBL). It is student-centered approach that fosters active learning by you, the student, instead of an instructor-based approach based on lecturing.

You will learn more about this approach and begin to develop your team on the first day of class.

In addition to working with team members during class, you will be expected to complete homework and reading assignments in preparation for class. There will be quizzes, exams, and projects to assess your ability to meet course objectives.



Lost Cabin, Wind River Basin, WY 2007 with Denver Museum of Nature and Science

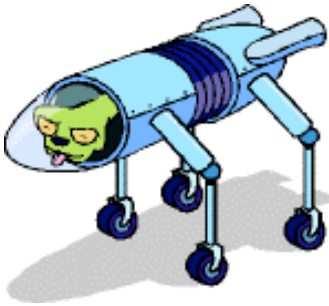
Special Interest Articles:

- Team-based learning builds skills in applying knowledge. Cover page
- How to be a successful college student. Page 2
- Find out what Dr. Anderson discovered in *Hell's Canyon*. Page 5
- Women in Science. Page 6

Individual Highlights:

Successful students	2
Course requirements	3
Teams vs. Groups	3
Course calendar	4
Summer Field work	5
How to Study	6
Women in Science	6

Successful College Students



Responsibilities

You will be a successful college student if you follow both oral and written instructions. The course syllabus and assignment sheets are the primary sources of instruction, so read them regularly.

Successful college students write down any instructions given orally by the professor. They take accurate notes and ask questions well before due dates.

Successful college students ask informed questions meaning that

they have researched a topic and tried to answer the question themselves before asking the professor.

Classroom Conduct

Successful students conduct themselves in a professional manner in class and lab because college is a professional environment, akin to a job.

Successful college students arrive at class promptly, having completed the assigned readings and tasks. Giving the professor your full attention and being

prepared shows that you are a serious student and are interested in learning the material.

Plagiarism

Successful students always submit work that is original. This is the only way the professor and student can assess what the individual student has learned. Copying another student's work is considered plagiarism.

"Success is based on accomplishment, not effort--- but no accomplishment is ever attained without effort."

Dr. John Sullivan

Keys to Success in College

Set primary goals.

Write these down and divide them into smaller segments.

Prioritize your life.

Doing well in college should be a top priority. Participate in activities that help you achieve your goals.

Study regularly.

Attend all classes and labs.

Complete all homework on time and make it quality work.

Take responsibility for your learning.

This includes being self-disciplined about when to study and how much time to devote to various projects and activities.

Effectively manage your time. If you don't plan to do something, little will happen to move you towards your goal.



Plan for Success!!

Course Requirements, Assignments, Assessment

With TBL, each class is devoted to team activities. Outside of class you will be completing individual activities in preparation for class. The course material will be divided into several different modules. At the start of each new module, you will take a Readiness Assessment Test (RAT) to determine your readiness for team activities and individual homework assignments. This is followed by a team RAT, appeals process, and professor feedback.

The rest of class is devoted to application oriented activities in which you will learn how to think critically about

and apply the knowledge gained via individual study and homework.

After one or more team activity sessions followed by homework, you will take an end-of-module exam (EME) to assess your ability to apply and problem solved with the learned concepts.

You are required to attend every class and participate as an informed, effective team member.

To assess your achievement of course objectives (stated on page one), evaluation will be made using a combination of the RATs, activities completed products, homework, and

lab assignments/projects. Thus, your final course grade will be determined based on individual and group produced works.

Teams vs. Groups

1. Teams remain together for the entire semester giving you time to build on each other's strengths.
2. Most of the teamwork is done during class eliminating the scheduling problems.
3. Team members are to work on all tasks together, no dividing of tasks among members.
4. Team members do not have assigned roles.
5. Individuals are graded on their team

Course Objectives Cont.

- Evaluate a particular phylogeny and propose an alternative, evidence-based scenario.

- Demonstrate an ability to classify a fossil to genus level.

- Put together a sophisticated, student-designed experiment and present the results in a mock research symposium.

Course topics will include discussions of extinction, morphology, macroevolution, and

paleoecology. We will also discuss how our knowledge about past climate and species changes can inform our decisions with respect to global warming.

The knowledge gained and confidence in your critical thinking skills and scientific research skills will serve you well in future coursework and in your career.

Course Resources

Textbook:

Principles of Paleontology, by Michael Foote and Arnold Miller, 2007.



Lance in Buck Springs Quarry, Lost Cabin, WY

2007

Class Calendar



"For a population to evolve, it must harbor genetic differences among individuals."
Scott Freeman

August 2007

Monday	Tuesday	Wednesday	Thursday	Friday
27 First day of class; orientation Homework:	28 Module 1: RAT Homework	29 Homework	30 lab 1 Morphologic vs. biologic species	31 <i>Discrimination of species</i>

September 2007

Monday	Tuesday	Wednesday	Thursday	Friday
3 Labor Day no classes	4 Testing for differences between pop.	5	6 Lab 2	7 Describing specimens
10 Intrapopulational variation	11 Describing variation	12	13 Lab 3	14 Describing variation
17 Exam I	18 Module 2- RATs	19	20 Lab 4	21 Rarefaction
24 Completeness of the fossil record	25 Measures of completeness	26	27 Lab 5	28 Phylogenetic patterns

Assessment Specifics

During the first class meeting, students will decide the grading weights. The following course assessments will be graded.

Individual performance - iRAT, EME, homework
Team performance - tRAT, team activities
Peer evaluation - your performance as a team member

Evaluation Scale

93-100 A
89-92 AB
83-88 B
79-82 BC
73-78 C
69-72 CD
63-68 D

Hell's Canyon: Adventures of the Lost Cabinians

Did you ever see the movie "Starship Troopers"? Remember the giant spider - spaceship scene? It was filmed in Hell's Canyon, just 30 miles north of Casper Wyoming. This is one of the many localities I scouted for Eocene fossil mammals this summer.

Lance, my 8 year old, and I departed on the 9th of June 2007 for Lost Cabin of the Wind River Basin Wyoming. We camped with Dr. Richard Stucky and volunteers from the Denver Museum of Nature and Science. We call ourselves the Lost Cabinians.

Among our finds, we discovered fossil rodent jaws with teeth!! The rodents are paramyids of the rodent family Ischyromyidae and they are Eocene age, about 50 million years old. Stop by Dr. Anderson's office and she can show you some she has collected from the Bridger in previous field seasons.

In a sagebrush near our tent, we found two rattlesnakes, a juvenile prairie rattler and an adult massagua. They were sitting just 12 " from our tent opening! (We relocated our tent that evening.)

Our group also had the opportunity to venture to Thermopolis, WY to see the newest on exhibit *Archaeopteryx* specimen. They take security seriously, it was behind bullet proof glass!!

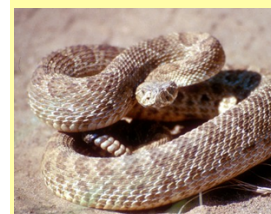
Lance and I also recovered a virtually complete cow skull. This is in Dr. Anderson's office, come and check it out sometime.

The wind is very strong in Wind River Basin. It took out two of our four tent poles during the two weeks. It was woman against nature as I added duct tape and

Cont. page 6

"We also found two rattlesnakes, a juvenile prairie rattler and an adult massagua."

Savanna.internet.edu/gallery/sgs/SGS



Buck Springs Quarry, Lost Cabin of the Wind River Basin, WY; June 2007

Services to Students with Disabilities

"In keeping with the St. Norbert College mission to help students develop their full potential, and in compliance with the Americans with Disabilities Act, the College provides supportive services to students with disabilities. For enquiries and further details, please visit the Academic Support

Services Office located on the lower level of the John Minahan Science Building (JMS) or contact **Karen Goode-Bartholomew**, Coordinator of Services to Students with Disabilities (Phone: 403-1326), or visit the website www.snc.edu/academicupport/disabilities.html."



St. Norbert College

100 Grant Street
De Pere, WI 54115
US

Phone:
920-403-3199

Fax: 920-403-4033

E-Mail:
deborah.anderson@snc.edu

Biology Discipline

We're on the Web!

See us at:

www.snc.edu/biology

How to Study for this Course

Given the team-based learning approach to the course, you will be combining your skills to study independently and develop your skills at working collaboratively. The independent work will be done outside of class, preparing yourself by learning basic knowledge and concepts for that week. In class,

you will be self-assessing your understanding of material you have read and working in teams to identify misconceptions.

With this foundational work complete, in-class time will be spent applying the knowledge you have recently acquired. This will be

your opportunity to practice using the information at progressively deeper levels of understanding. You also will have time to further clarify your understanding of key facts and concepts prior to taking a unit exam.

Hell's Canyon cont.

metal stakes, trying to secure the tent. I will certainly bring a different type of tent next year and cots. We discovered a bright yellow scorpion, the size of the palm of your hand living underneath our tent when we packed up for good.

After leaving Lost Cabin, we headed over to Yellowstone and Jackson, Wyoming. What beautiful

*The Teton
Mountains,
Jackson, WY*



country!! We took a float trip down the Snake River on July 1 to celebrate Lance's birthday. The Tetons are magnificent!

If you ever get a chance to travel, I highly recommend a visit to

Wyoming, the western part of the state. Stop at Lost Cabin, Thermopolis, Yellowstone National Park and Jackson Hole, WY. It is very beautiful country.

Women in Mathematics and Science

There is an active group of women faculty members promoting and encouraging the pursuit of careers in science and mathematics for women and men. However, we are especially interested in encouraging and supporting young women to ask questions

they may have about being successful in a career in mathematics or science. Questions about the preparation required, how to combine career and family life, what opportunities are available.

I encourage you to contact any of the faculty members shown here for more information.

