FORMAT 1

Submit original with signatures + 1 copy + electronic copy to Faculty Senate (Box 7500).

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

TRIAL COURSE OR NEW COURSE PROPOSAL
(Attach copy of syllabus)

SUBMITTED BY:

Department	**Chemistry and Biochemistry**	**College/School**	**CNSM**
Prepared by	**Sarah Hayes**	**Phone**	**907-474-7118**
Email Contact	**s.hayes@alaska.edu**	**Faculty Contact**	**Sarah Hayes**

1. ACTION DESIRED ***(CHECK ONE):*** Trial Course [ ] New Course [X]

2. COURSE IDENTIFICATION: Dept **CHEM** Course # **111X** No. of Credits **4**

Justify upper/lower division status & number of credits: **This course is designed to introduce entry-level undergraduates to environmental chemistry. The course will consist of 3 hours of lecture and 3 hours lab per week.**

3. PROPOSED COURSE TITLE: **Introduction to Environmental Chemistry of the Arctic**

4. To be CROSS LISTED? *YES/NO* **no** If yes, Dept: Course #

NOTE: Cross-listing requires approval of both departments and deans involved. Add lines at end of form for additional required signatures.

5. To be STACKED?* *YES/NO* **no** If yes, Dept. Course #

How will the two course levels differ from each other? How will each be taught at the appropriate level?:

* Use only one Format 1 form for the stacked course (not one for each level of the course!) and attach syllabi. Stacked course applications are reviewed by the (Undergraduate) Curricular Review Committee and by the Graduate Academic and Advising Committee. Creating two different syllabi (undergraduate and graduate versions) will help emphasize the different qualities of what are supposed to be two different courses. The committees will determine: 1) whether the two versions are sufficiently different (i.e. is there undergraduate and graduate level content being offered); 2) are undergraduates being overtaxed?; 3) are graduate students being undertaxed? In this context, the committees are looking out for the interests of the students taking the course. Typically, if either committee has qualms, they both do. More info online – see URL at top of this page.

6. FREQUENCY OF OFFERING: **Fall**

Fall, Spring, Summer (Every, or Even-numbered Years, or Odd-numbered Years) — or As Demand Warrants

7. SEMESTER & YEAR OF FIRST OFFERING (Effective AY2015-16 if approved by 3/31/2015; otherwise AY2016-17) **AY 2016-17**

8. COURSE FORMAT:

NOTE: Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council. Furthermore, **any core course compressed to less than six weeks must be approved by the Core Review Committee.**

COURSE FORMAT: (check all that apply)	[ ] *1*	[ ] *2*	[ ] *3*	[ ] *4*	[ ] *5*	[X] *6 weeks to full semester*
OTHER FORMAT (specify)						
Mode of delivery (specify lecture, field trips, labs, etc)	**3 hours of lecture, 3 hours of lab per week**					

RECEIVED

Governance

10/14/15 LMR

OCT 13 2015

Dean's Office

College of Natural Science & Mathematics

9. CONTACT HOURS PER WEEK:	3	LECTURE hours/weeks	3	LAB hours /week		PRACTICUM hours /week

Note: # of credits are based on contact hours. 800 minutes of lecture=1 credit. 2400 minutes of lab in a science course=1 credit. 1600 minutes in non-science lab=1 credit. 2400-4800 minutes of practicum=1 credit. 2400-8000 minutes of internship=1 credit. This must match with the syllabus. See http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/guidelines-for-computing-/ for more information on number of credits.

OTHER HOURS (specify type)	

10. COMPLETE CATALOG DESCRIPTION including dept., number, title, credits, credit distribution, cross-listings and/or stacking (50 words or less if possible):

Example of a complete description:

FISH F487 W, O Fisheries Management
3 Credits Offered Spring
Theory and practice of fisheries management, with an emphasis on strategies utilized for the management of freshwater and marine fisheries. *Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; ENGL F414; FISH F425; or permission of instructor.* Cross-listed with NRM F487. (3+0)

CHEM 111X Introduction to Environmental Chemistry of the Arctic
4 Credits Offered Fall
This course introduces students to environmental chemistry through investigating the air, water, and soil quality of the arctic environment as affected by natural and anthropogenic cycling of nutrients and contaminants. The lab component will focus on characterization of natural waters collected around the state. This course is offered on-campus and by distance. Pre-requisites: Completion of DEVM 105 or placement in higher

11. COURSE CLASSIFICATIONS: Undergraduate courses only. Consult with CLA Curriculum Council to apply S or H classification appropriately; otherwise leave fields blank.

H = Humanities		S = Social Sciences	

Will this course be used to fulfill a requirement for the baccalaureate core? **If YES, attach form.**	**YES:**		**NO:**	

IF YES, check which core requirements it could be used to fulfill:

O = Oral Intensive, **Format 6**		W = Writing Intensive, **Format 7**		X = Baccalaureate Core	X

11.A Is course content related to northern, arctic or circumpolar studies? If yes, a "snowflake" symbol will be added in the printed Catalog, and flagged in Banner.

YES	X	NO	

12. COURSE REPEATABILITY:

Is this course repeatable for credit?	YES		NO	X

Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).	

How many times may the course be repeated for credit?		**TIMES**
If the course can be repeated for credit, what is the maximum number of credit hours that may be earned for this course?		**CREDITS**
If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course?		**CREDITS**

13. GRADING SYSTEM: Specify only one. Note: Changing the grading system for a course later on constitutes a Major Course Change – Format 2 form.

LETTER:	X	**PASS/FAIL:**	

RESTRICTIONS ON ENROLLMENT (if any)

14. PREREQUISITES	Completion of DEVM 105 or placement in higher

These will be *required* before the student is allowed to enroll in the course.

15. SPECIAL RESTRICTIONS, CONDITIONS	

16. PROPOSED COURSE FEES	**$100 on campus $250 off campus**
Has a memo been submitted through your dean to the Provost for fee approval? **Yes/No**	**yes**

17. PREVIOUS HISTORY

Has the course been offered as special topics or trial course previously? **Yes/No**	**yes**

If yes, give semester, year, course #, etc.: Fall 2015, CHEM 194

18. ESTIMATED IMPACT

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

This course requires 3 credits of workload for the instructing faculty. The currently proposed model is to team teach this course between 2 faculty (Hayes & Guerard) for 1.5 credit each. It will also require the use of a teaching laboratory in the Chemistry Department for 3 hours per week and a projector-equipped classroom for 3 hrs per week in the semester delivered. A half TA-ship is appreciated, if available for small enrollments, but would be required for larger enrollments.

19. LIBRARY COLLECTIONS

Have you contacted the library collection development officer (kljensen@alaska.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

No	X	Yes		**Current library collection is adequate for the course.**

20. IMPACTS ON PROGRAMS/DEPTS

What programs/departments will be affected by this proposed action?
Include information on the Programs/Departments contacted (e.g., email, memo)

The Department of Chemistry and Biochemistry will be the primary affected program. The first offering of this course was fully funded through a curriculum development grant, including funding for a dedicated TA-ship in Fall 2015. Additional funding will be sought to support the course, but the current offering is being done without direct TA support

This course was most popular with more advanced students in the first offering, indicating that students value the addition of an Arctic specific Environmental Chemistry course.

This course was developed in close collaboration with eLearning as Hayes' CITE project (AY 14-15), and eLearning offered substantial technology support. We have also established industrial partnerships an collaboratively developed distance delivery lab kits for the course.

21. POSITIVE AND NEGATIVE IMPACTS

*Please specify **positive and negative** impacts on other courses, programs and departments resulting from the proposed action.*

Positive: This course provides a new opportunity not available elsewhere at UAF with a distance component.
Negative: This course requires 3 workload credits of faculty time, the use of a projector-equipped classroom 3 hrs per week, and a laboratory for 3 hrs per week in the semester offered as well as potentially TA support.

JUSTIFICATION FOR ACTION REQUESTED

The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course 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 course.

UAF does not currently offer any specific environmental chemistry courses at the entry or mid-career levels, despite having one of the few Environmental Chemistry graduate programs in the country (and some of the core courses are stacked and available at the 400-level). The target demographic for this course is early career on campus and distance students. By putting science into a relevant context, we hope to retain or recruit nontraditional STEM majors, who might not be as successful in a more traditional general chemistry setting. We also want to extend these opportunities to students in rural communities by offering a distance option and add to the few distance-delivered lab courses available. This course will build a cohort of students that could support rural students in coming to UAF to finish their professional training. Even failing these goals, we will have at least improved scientific literacy and raised awareness of current environmental health issues facing the arctic.

We believe that this course is key in broadening the course offerings in Chemistry to support scientific literacy for a broader audience across campus.

Our goal in putting this course forward as a new course at this time is that we believe the lack of a core designation is a major impediment to recruiting our target demographic in this course. The current trial offering has been extremely successful in distance-delivery of both the lecture and lab.

APPROVALS: Add additional signature lines as needed.

Thom K. Green — Date 10-13-15
Signature, Chair, Program/Department of: CHEM + BIOCHEM

Date 10-7-15
Signature, Chair, College/School Curriculum Council for: CNSM

Paul W Layer — Date 10/13/15
Signature, Dean, College/School of: CNSM

Offerings above the level of approved programs must be approved in advance by the Provost.

Date
Signature of Provost (if above level of approved programs)

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

Date
Signature, Chair
Faculty Senate Review Committee: ___Curriculum Review ___GAAC
___Core Review ___SADAC

ADDITIONAL SIGNATURES: (As needed for cross-listing and/or stacking)

Date
Signature, Chair, Program/Department of:

Date
Signature, Chair, College/School Curriculum Council for:

		Date	
Signature, Dean, College/School of:			

ATTACH COMPLETE SYLLABUS (as part of this application). This list is online at:
http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/uaf-syllabus-requirements/
The Faculty Senate curriculum committees will review the syllabus to ensure that each of the items listed below are included. If items are missing or unclear, the proposed course (or changes to it) may be denied.

SYLLABUS CHECKLIST FOR ALL UAF COURSES

During the first week of class, instructors will distribute a course syllabus. Although modifications may be made throughout the semester, this document will contain the following information (as applicable to the discipline):

1. Course information:

❑Title, ❑ number, ❑credits, ❑prerequisites, ❑ location, ❑ meeting time
(make sure that contact hours are in line with credits).

2. Instructor (and if applicable, Teaching Assistant) information:

❑ Name, ❑ office location, ❑ office hours, ❑ telephone, ❑ email address.

3. Course readings/materials:

❑ Course textbook title, ❑ author, ❑ edition/publisher.
❑ Supplementary readings (indicate whether ❑ required or ❑ recommended) and
❑ any supplies required.

4. Course description:

❑ Content of the course and how it fits into the broader curriculum;
❑ Expected proficiencies required to undertake the course, if applicable.
❑ Inclusion of catalog description is *strongly* recommended, and
❑ Description in syllabus must be consistent with catalog course description.

5. ❑ Course Goals (general), and (see #6)

6. ❑ Student Learning Outcomes (more specific)

7. Instructional methods:

❑ Describe the teaching techniques (eg: lecture, case study, small group discussion, private instruction, studio instruction, values clarification, games, journal writing, use of Blackboard, audio/video conferencing, etc.).

8. Course calendar:

❑ A schedule of class topics and assignments must be included. Be specific so that it is clear that the instructor has thought this through and will not be making it up on the fly (e.g. it is not adequate to say "lab". Instead, give each lab a title that describes its content). You may call the outline Tentative or Work in Progress to allow for modifications during the semester.

9. Course policies:

❑ Specify course rules, including your policies on attendance, tardiness, class participation, make-up exams, and plagiarism/academic integrity.

10. Evaluation:

❑ Specify how students will be evaluated, ❑ what factors will be included, ❑ their relative value, and ❑ how they will be tabulated into grades (on a curve, absolute scores, etc.) ❑ Publicize UAF regulations with regard to the grades of "C" and below as applicable to this course. (Not required in the syllabus, but is a convenient way to publicize this.) Link to PDF summary of grading policy for "C":
http://www.uaf.edu/files/uafgov/Info-to-Publicize-C_Grading-Policy-UPDATED-May-2013.pdf

11. Support Services:

❑ Describe the student support services such as tutoring (local and/or regional) appropriate for the course.

12. Disabilities Services: Note that the phone# and location have been **updated.** http://www.uaf.edu/disability/ 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.

❑ State that you will work with the Office of Disabilities Services (208 WHITAKER BLDG, 474-5655)to provide reasonable accommodation to students with disabilities.

TITLE:	Introduction to Environmental Chemistry of the Arctic
NUMBER:	CHEM 111X (on-campus CRN: TBD; Distance CRN: TBD)
CREDITS:	3
PREREQUISITES:	DEVM 105 or higher placement
LECTURE:	Monday, Friday 3:30-4:30 pm (Campus: REIC 138; Dist: Blackboard Collaborate)
LABORATORY:	Wednesday 2:15-5:15 pm (Campus: REIC 245; Distance: lab kit)
DISTANCE:	Distance: Remotely attend 2 hr synchronous lecture via Blackboard Collaborate or, if needed, watch lectures asynchronously. Lab experiments and collaboration performed asynchronously.

Instructors:	**Dr. Sarah Hayes**	**Dr. Jennifer Guerard**
Office:	Reichardt 188	Reichardt 180
Phone:	907-474-7118	907-474-5231
Email:	s.hayes @alaska.edu	jguerard@alaska.edu
Office Hours:	TBD, or by appointment	TBD, or by appointment

COURSE DESCRIPTION

This course introduces students to environmental chemistry through investigating the air, water, and soil quality of the arctic environment as affected by natural and anthropogenic cycling of nutrients and contaminants. The lab component will focus on characterization of natural waters collected around the state. This course is offered both on campus and by distance. Pre-requisites: Completion of DEVM 105 or placement in higher

EXPANDED COURSE DESCRIPTION

This course introduces students to environmental chemistry through investigating the air, water, and soil quality of the arctic environment as affected by natural and anthropogenic cycling of nutrients and contaminants. The lab component will focus on characterization of natural waters collected around the state through the use of collaborative research teams, made of a combination of distance and on-campus students, depending on enrollments. All students will have the same lab experiences, except for lab weeks 3 and 4 of the semester, when some students (all distance students and some on campus students) will sample natural waters and do on-site analysis and some on-campus students be exposed to advanced instrumentation that will be used to analyze collected samples, depending on abilities and roles on the research team. These different experiences will be shared within and between research teams through the use of screencasts (due week 5).

Within each research team, there will be a site expert (all distance students and some on campus students), while other on-campus students will be instrumentation experts, thereby contributing unique knowledge to strengthen the team. Site experts will have the opportunity to share their field sites with their on-campus team through photos, videos, and screencasts, but maintain an inherently better understanding of their unique sampling sites. Instrumentation experts will develop expertise on advanced instrumentation used by the TA to collect data on natural water samples and share that information with the rest of the class, particularly distance students, through screencasts. Although on-campus students will have a more interactive experience with advanced instrumentation because they will have a tour with the TA operating the instruments, distance students will be included asynchronously through virtual tours available to all students. In all cases, students will be provided with equivalent opportunities.

COURSE GOALS

Students will gain an appreciation of the influence of chemistry in the natural, arctic environment and the implications of human-caused perturbations of these systems and potential remediation strategies.

STUDENT LEARNING OUTCOMES

Upon successful completion of this course, students will:

- Understand the basic chemical concepts as they relate to the function of ecosystems and the existence/transformation of contaminants.
- Outline basic metrics for assessing air, water, and soil quality and explain their importance as indicators of environmental health.
- Identify examples of anthropogenic influences of natural cycles and explain how that impacts ecosystem health.
- Evaluate student-generated water quality data from across the state and interpret data to assess anthropogenic perturbation of ecosystems.

COURSE READINGS/MATERIALS

Required Textbook: Environmental Science for a Changing World 1st edition. By Karr, Houtman, Interlandi. ISBN:978-1-4641-2938-4

Other required readings are available on Blackboard.

In order to participate in this class, distance students will be provided with a lab kit by mail. When you registered for the course, a refundable $250 deposit was charged to your account for the distance lab kit. **Lab kits will be shipped by the middle of August** and students should receive them by the start of the course. If you drop the course, you must return a complete lab kit (in a condition that is usable by another student) in order to receive a refund of $250. The amount will be credited to your student account after it has been received and inventoried at UAF.

TECHNICAL REQUIREMENTS FOR COURSE

Students must have regular access to a computer and the Internet to access online materials in Blackboard. Students will be expected to download course material as well as upload assignments. Students are also expected to regularly use their UAF Gmail accounts, Blackboard, Google Hangouts, and screencast-o-matic as methods of collaboration and sharing of their understanding.

Tablets will be loaned to distance students for the duration of the semester. Tablets will be preloaded with most required applications and information. At the end of the semester, you will need return the tablet and probes provided in the lab kit to your instructors. Upon arrival, the probes were packaged in an addressed, stamped container. Keep the probes in this box during the semester, when not in use, and use it to return the probes and tablet at the end of the semester. After the tablet and probes have been received at UAF, the $250 lab kit fee will be refunded to your student account.

INSTRUCTIONAL METHODS

Course material will be delivered through a combination of lectures incorporating active learning techniques, lab exercises (a combination of virtual, field, and kitchen-based labs), and weekly activities (ie case studies, interviews with experts, developing screencasts, etc). Research teams of on-campus and distance students (team makeup will vary with enrollments, but at max enrollment research teams

will comprise 2 on-campus and 1 distance students) will generate lab-based replicate data sets of surface water quality data from communities across the state. Student groups will work closely and engage in peer mentoring (some students will develop expertise on the field site while others develop expertise in instrumentation) and build a community of learners across the state of Alaska.

COURSE SCHEDULE
See attached.

COURSE POLICIES
Continued attendance to class indicates each student agrees to the policies set forth in this syllabus. Distance course attendance will be measured through effort on assignments, collaborative activities, and exams.

Collaboration and Classroom Behavior - Collaboration and working in small groups is a key component of classroom and lab time. Your group is there to support your learning, not do the work for you. Students are expected to conduct themselves in a professional manner at all times. Disrespect of the classroom learning environment, instructors, and fellow students will not be tolerated!

Late work- Late work will be accepted at a 10% per day reduction of the points possible. This is in an effort to keep the entire class moving through the projects efficiently. Emergency situations will be dealt with as needed.

Instructor-Initiated Withdrawals- Any time up to and including the last day to drop with a "W", the professor has the right to withdraw a student that "...has not participated substantially in the course." In CHEM 111 nonparticipation includes:
(1) Either of the first two assignments are not turned in within 1 week of the due date,
(2) Exam I is missed without an excused absence,
(3) one or more lab reports are not turned in within 1 week of the date due, or
(4) completes less than 2/3 of homework assignments.

EVALUATION POLICIES
There are **1000 total points available** in this class. Grades are assigned as follows: 1000-900 A, 899-800 B, 799-700 C, etc. The instructors reserve the right to adjust grading scheme to the student's benefit.

Reading checks	10 pts x 14 weeks= 140 points possible	125
Online discussion	20 pts x 14 weeks= 280 points possible	255
Labs	30 pts x 12 labs = 360 points	360
Hour exams	100 pts x 2 exams = 200 points	200
Final presentation		60
Total points		**1000**

Reading Checks (est. 2-3 hrs per week)- Each week, 5 pts are available for chapter readings and 5 pts for case study. Reading assessment assignments will be due Mondays and Fridays at 12pm, before class begins. Of the 140 points possible, only 125 will be counted toward the final grade.
Online Discussion (est. 2-3 hrs per week)- Each week, 15 points are available for posting to online discussion topics (due Friday at 12pm) and 5 pts are available for replying thoughtfully to others posts (Due Mondays at 12pm). A total of 280 points are possible, of which 255 will be counted toward the final grade.

Labs (est. 3 hrs per week)- Twelve lab experiments will be performed during the semester, each worth 30 points. Lab reports will be exchanged between students and the instructors using Blackboard.
Exams- Two hourly exams are scheduled, a midterm and final exam.
Final Presentation- Final presentations on surface water characterized during the semester will be performed during the final exam period.

Successful, timely completion of this course depends on committing yourself early and maintaining your effort. To this end, this course adheres to the following UAF eLearning Procedures:

INSTRUCTOR RESPONSE TIME

The instructors will attempt to respond promptly to student emails during normal business hours, but response times may be up to 24 hours. Assignments graded by instructors (e.g., lab reports, exams, blog posts) will generally be returned within 48 hours after assignment due date but no longer than a week. Grades in Blackboard will be updated weekly.

HOW TO CHECK YOUR GRADE

To check your grades for assignments and find comments from your instructor, click on the My Grades link in the sidebar menu in Blackboard. All the assignments and their due dates are listed. If your instructor has left comments, there will be a Comments link. Click on this link to view comments.

- If the score is for a test or quiz, click on the check mark or your score to see results and feedback.
- If the score is for an assignment, the title of the assignment is a link and by clicking this link you'll be taken to your submission, grade and comments.
- If you see a green explanation point, your assignment has not been graded yet.

EFFORT AND STUDENT INVOLVEMENT*

The categories below demonstrate how the 2 hours of lecture, 3 hours of lab and 4 hours of non-lecture in a face to face course translate into 9 hours of work in an online course, meeting the requirement of 9 hours of work per week for a 3 credit course. This calculation covers the entire course.

1. **INSTRUCTION:** lectures *22%*
2. **INDIVIDUAL RESEARCH:** *lab experiments 33%*
3. **ASSIGNMENTS:** readings, *case studies, quizzes, homework 22%*
4. **COLLABORATION:** *case studies, laboratory project 23%*

*This metric of student effort is used during development to ensure rigor and alignment with the federal guidelines and definitions for credit hour equivalents for online learning and other out-of-classroom work. This portion of the syllabus is for development purposes only and students will see only the sections required by Faculty Senate in their syllabus.

EXPECTATION OF STUDENT EFFORT

Students should expect to spend 9 hours per week on this class. Students are expected to complete the weekly assignments by their due dates.
If circumstances arise that cause you to need extra time on any assignment(s), e-mail your instructor for guidance. Extensions of due dates may be granted, but your instructor expects to be informed in advance if you are not able to submit your assignment on time. Students are expected to maintain a working backup plan to be implemented in the event of a computer malfunction or an interruption of their normal Internet service during the course.

ACADEMIC INTEGRITY

Honor code and Academic integrity- Students are expected to conduct themselves in accordance with the UAF Honor code. The Chemistry Department policy states: *Any student caught cheating will be*

assigned a course grade of F. The students' academic advisor will be notified of this failing grade and the student will not be allowed to drop the course.

As described by UAF, scholastic dishonesty constitutes a violation of the university rules and regulations and is punishable according to the procedures outlined by UAF. Scholastic dishonesty includes, but is not limited to, cheating on an exam, plagiarism, and collusion. Cheating includes providing answers to or taking answers from another student. Plagiarism includes use of another author's words or arguments without attribution. Collusion includes unauthorized collaboration with another person in preparing written work for fulfillment of any course requirement. Scholastic dishonesty is punishable by removal from the course and a grade of "F." For more information go to Student Code of Conduct. (http://uaf.edu/usa/student-resources/conduct)

SUPPORT SERVICES

UAF eLearning Student Services helps students with registration and course schedules, provides information about lessons and student records, assists with the examination process, and answers general questions. Our Academic Advisor can help students communicate with instructors, locate helpful resources, and maximize their distance learning experience. Contact the UAF eLearning Student Services staff at 907. 479.3444 or toll free 1.800.277.8060 or contact staff directly – for directory listing see: http://elearning.uaf.edu/contact

UAF Help Desk

Go to http://www.alaska.edu/oit/ to see about current network outages and news.
Reach the Help Desk at:

- e-mail at helpdesk@alaska.edu
- fax: 907.450.8312
- phone: 450.8300 (in the Fairbanks area) or 1.800.478.8226 (outside of Fairbanks)

DISABILITIES SERVICES - The **UAF Office of Disability Services** operates in conjunction with UAF eLearning. Disability Services, a part of UAF's Center for Health and Counseling, provides academic accommodations to enrolled students who are identified as being eligible for these services.

If you believe you are eligible, please visit their web site (http://www.uaf.edu/disability/) or contact a student affairs staff person at your local campus. You can also contact Disability Services on the Fairbanks campus by phone, 907.474.5655, or by e-mail (uaf-disabilityservices@alaska.edu).

VETERAN SUPPORT SERVICES - Walter Crary (wecrary@alaska.edu)is the Veterans Service Officer at the Veterans Resource Center (111 Eielson Building, 474-2475). Fairbanks Vet Center 456-4238. VA Community Based Outpatient Clinic at Ft. Wainwright is 361-6370.

Tentative Lecture and Lab Schedule

Week 1 – Introduction
Reading: Environmental Science, Ch 1-2
Case study: The Obligation to Endure, an excerpt from Silent Spring by Rachel Carson
Lab 1: Safety and Scientific Method

- Safety map and contract
- Data interpretation and testable observations
- Neutralization of acids and bases

Week 2 – Air Quality
Reading: Environmental Science, Ch 3, 25
Case study: Bear Trouble
Lab 2: Modeling Air Quality and Introduction to pH

- HYSPLIT modeling of air plumes
- PHET simulation- pH scale basics
- pH of household items

Week 3: Introduction to Water Quality
Reading: Environmental Science, Ch 17
Case study: Tricolsan in water treatment – from research to regulation in Minnesota
Lab 3: Water Quality and Contamination

- Effects of water contamination
- Water treatment
- Practice with environmental probe measurements

Week 4: Water Quality and Treatment
Reading: Environmental Science, Ch 18
Case study: Interview with CH2M Hill professionals
Lab 4: Sampling Surface Water- Distance

- Selecting a sample site
- Sampling natural waters
- Sample preservation
- Distance students: Prepare and ship samples to UAF for additional analysis.
- On campus students: Jigsaw of analytical techniques.

Week 5 – Water Quality of Groundwater
Reading: Environmental Science, Ch 7
Case study: Sulfolane
Lab 5: Surface Water Analysis

- Surface water characterization
- Virtual stream lab
- Site descriptions (distance) and analytical jigsaw screencasts (on-campus) due.

Week 6- Marine Water Quality
Reading: Environmental Science, Ch 15, 16
Case study: Effects of ocean acidification on corals
Lab 6: Marine Water Quality and Ocean Acidification

- Effect of atmospheric CO_2 on ocean pH
- Shell stability upon ocean acidification

Week 7 – Contaminant Transport and Transformation

Reading: Environmental Monitoring and Characterization, Ch 16 *Available on blackboard*
Case study: PCBs in salmon causing accumulation in spawning lake sediments
Lab 7: Contaminant Partitioning

- Contaminant partitioning in the environment

Week 8– Weathering and Soil Formation
Reading: Environmental Science, Ch 19, 23
Case study- How permanent is permafrost?
Lab 8: Weathering and Soil Formation

- Rocks into soil
- Exploring Alaskan soils

Week 9 – Metals and Inorganic Contaminants
Reading: Environmental Science, Ch 24
Case study – Pebble mine: Tension between mineral recovery, fishing, and community health
Lab 9: Soil Quality and Contamination

- Soil contamination
- Treating acid mine drainage

Week 10 – Environmental Microbiology I
Reading: Environmental Science, Ch 6, Environmental Monitoring and Characterization, Ch 14
Case study: Coliforms in Antarctica
Lab 10: Microbiology of Soils

- Virtual microscope
- Virtual pond dip

Week 11 – Environmental Microbiology II
Reading: Environmental Science, Ch 7
Case study – Oil Biodegradation and Bioremediation: A Tale of the Two Worst Spills in US History
Lab 11: Biodiversity and Biomagnification

- Yeast responses to pollution
- Biomagnification

Week 12 – Ecological Interactions and Bioaccumulation
Reading: Environmental Science, Ch 9
Case study: Bioaccumulation in the Arctic
Lab 12: no lab, Thanksgiving

Week 13 –Forest Fires & Ecological Succession
Reading: Environmental Science, Ch 26
Case study: Primary succession following deglaciation at Glacier Bay, Alaska
Lab 13: Sharing project data. Peer research project presentations, peer evaluations

Week 14 - Climate Change in the Arctic
Reading: Environmental Science, Ch 28
Case study: What does the data tell us about climate change?
Lab 14: Energy Sources and Climate Change

- Energy sources and alternative energy
- Climate change

Week 15 – Peer Research Presentations, Story GIS Project

UAF eLearning
2175 University Avenue, Suite 200
P.O. Box 756700 • Fairbanks, AK 99775
907.479.3444 • 800.277.8060 • fax: 907.479.3443
uaf-elearning@alaska.edu
elearning.uaf.edu

Tentative Course Schedule

Wk.	Date	Topic	Laboratory
0	Sept 4	Introduction to the course	No lab
1	Sept 7 Sept 11	Labor Day Introduction to Environmental Chemistry	1: Safety and Scientific Method
2	Sept 14 Sept 18	Air Quality	2: Modeling Air Quality and Introduction to pH
3	Sept 21 Sept 25	Introduction to Water Quality	3: Water Quality and Contamination
4	Sept 28 Oct 2	Water Quality and Treatment	4: Sampling Surface Water
5	Oct 5 Oct 9	Water Quality of Groundwater	5: Surface Water Analysis
6	Oct 12 Oct 16	Marine Water Quality	6: Marine Water Quality and Ocean Acidification
7	Oct 19 Oct 23	Contaminant Transport and Transformation EXAM 1	7: Contaminant Partitioning
8	Oct 26 Oct 30	Weathering and Soil Formation	8: Weathering and Soil Formation
9	Nov 2 Nov 6	Metals and Inorganic Contaminants	9: Soil Quality and Contamination
10	Nov 9 Nov 13	Environmental Microbiology I	10: Microbial World
11	Nov 16 Nov 20	Environmental Microbiology II	11: Biodiversity and Biomagnification
12	Nov 23 Nov 27	Ecological Interactions and Bioaccumulation Thanksgiving	No lab
13	Nov 30 Dec 4	Forrest Fires and Ecological Succession	Group work on presentations
14	Dec 7 Dec 11	Climate Change in the Arctic	14: Energy Sources and Climate Change
15	Dec 14 Dec 18	EXAM 2 3:15-5:15 pm Final Exam- Student Presentations	

CNSM committee comments on CHEM 111X Introduction to Environmental Chemistry of the Arctic - 3 credit New course proposal submitted by Sarah Hayes

This proposal is to make CHEM 111X a new core course in the Chemistry department. The course has a split local-distance delivery format and is a lab course. The course is currently being delivered as a trial course Fall 2015, which is its first trial offering. Although approved last year as a trial course, the CNSM curriculum committee has a few concerns about the new course proposal and core designation.

Major comments:

1) A core designation is requested for this course, but it is only 3 credits. Core science courses must be 4 credits so the structure of the course should be changed if a core designation is requested. The credit hour distribution must be 3 hours lab + 3 hours lecture per week.

We will be happy to add an extra hour of lecture per week. So far, lectures have been jam-packed to cover the information we want students to know. Adding an extra hour would allow more incorporation of more active learning and discussion. Additionally, the current enrollment of advanced students has allowed lecture material to be covered at an accelerated rate this semester and adding an extra hour would allow a better pacing for our target demographic. This semester, we decided to meet the students enrolled at the pace they are accustomed to but maintain the qualitative nature of the material.

2) The course is designed with a critical cohort of distance students paired with local students to accomplish research team goals. As designed, the local students and distance students fill complimentary, but different and separate roles in the team. The goal is to have a balanced number of distance to local students (1:2 as stated in the syllabus) for the lab component. What are the current enrollment numbers?

We currently have enrollment of three distance students and the consistent participation of two people on-campus. We have worked to get all our students interacting through Blackboard discussion, creating the collaborative cohort we envisioned. Each student will collect a natural sample and the instructors have taken on part of the roll of the on-campus students, in that we are receiving the water samples and preparing them for analysis using advanced instrumentation, which would normally be a task for the on-campus students.

If there is a semester in which distance and local student enrollment numbers do not balance as planned, do the instructors have a contingency plan to conduct the labs successfully?

Not being able to predict enrollment, especially the mix of distance and on-campus students, has definitely something that has been made clear this semester. While a ratio of 2:1 is ideal, we have and will continue to work with whatever enrollment distribution to create collaborative research teams to creatively engage students in research. We are confident that we can create research teams with whatever mixture of on-campus and distance students enroll.

We have revised the syllabus, especially the expanded course description, slightly to reflect that we will create research teams from whatever group of students enroll.

3) How is the distance lab component currently working in the trial semester? Are the students able to receive, unpack, and employ their kits successfully in the distance environment? Are they functioning well performing the lab activities on their own?

Last summer, Dr. Guerard and myself collaborated with eScience Labs to generate high quality experiments, a 166-pg lab manual, and a beautiful lab kit for distance students. Students have received the kits, and been using them without trouble to perform the lab experiments. We have been available to troubleshoot during the on-campus lab time as well as via email and have had very few, easily resolvable questions. This semester, we are continuing the generation of how-to videos to accompany each lab that will be a useful resource for future distance students.

4) In the "Impacts on Programs and Departments" section 20, it says that the course being taught now is more popular with advanced students showing a need for this course. But, it is proposed as a 100 level core course presumably to attract non-science majors and lower division undergrads. A reassessment of the level of course material, the course description, and the goals should be made to ensure it is attractive to the 100 level students.

I believe the current enrollment of advanced students is due to three factors, which either will not be a problem in the future or we are actively working to resolve:

1. Because this course hasn't been offered before, there were a lot of advanced students who are taking it now because it wasn't available when they were just beginning their education. This will likely not be a problem going forward because future advanced students will have taken it early in their careers.
2. We had a hard time figuring out how to advertise to our target audience- incoming freshman. We tried email blitzes to advisors, hanging fliers around campus, facebook, and yik yak, and announcements in 100-level courses. This is something we can and will do more of next year.
3. This course in the trial form doesn't count toward a degree, and thus is not as attractive to early career students who are focused on meeting the core requirements or the advisors they are consulting. One of our primary motivations for proposing this as a new course now is to increase enrollment of our target demographic.

5) We feel that the course proposal would be stronger if the instructors could finish the first trial semester (in progress) and then assess what worked, what didn't, and make refinements and improvements (if needed) based on the first delivery.

Our motivation behind putting CHEM 111X forward as a new course at this time is that we feel that the course not counting toward a degree is a huge impediment to enrollment. Thus, in an effort to better reach our target demographic of early career students, we feel compelled to put the paperwork forward. The current offering is going extremely smoothly, and there are essentially no changes (except to redistribute lecture material into 3 slower-paced lectures) planned for the next offering.

Minor comments:

1) Course is referred to as both CHEM 194 and CHEM 111 in both format and syllabus. For example, the number in the course catalog description (box 10) lists it as CHEM 194X

Change implemented.

2) The prerequisites might be clearer if worded "Placement into DEVM 105 or higher"

We would like students to have completed DEVM 105 or be placed into a higher math. We have revised the paperwork to clarify: "Completion of DEVM 105 or placement in higher"

3) In box 21 – clearly a big impact will be in faculty teaching time assigned to a new course. This should be explained in terms of faculty, regular workload, etc.

Faculty workload has been added to this section, but is also mentioned in sections 18 and 20.

4) The course description probably needs to be clear that it is split on site and distance delivery, but check with the registrar about how to word this if needed.

The following language has been added to the paperwork "This course is offered on-campus and by distance"