

Submit originals and one copy and electronic copy to **Governance/Faculty Senate Office**  
 See <http://www.uaf.edu/uafgov/faculty/cd> for a complete description of the rules governing curriculum & course changes.

### CHANGE COURSE (MAJOR) and DROP COURSE PROPOSAL

**SUBMITTED BY:**

<b>Department</b>	Biology and Wildlife	<b>College/School</b>	CNSM
<b>Prepared by</b>	Donald A. Walker	<b>Phone</b>	X2460
<b>Email Contact</b>	dawalker@Alaska.edu	<b>Faculty Contact</b>	Donald A. Walker

**1. COURSE IDENTIFICATION:** Current course number is F475. (Stacking is new.)

Dept	BIOL	Course #	F4 / 6	No. of Credits	3
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<b>COURSE TITLE</b>	Vegetation Description and Analysis
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**2. ACTION DESIRED:**

Change Course	<input checked="" type="checkbox"/>	If Change, indicate below what change.	Drop Course	<input type="checkbox"/>	
<b>NUMBER</b>	<input checked="" type="checkbox"/>	<b>TITLE</b>		<b>DESCRIPTION</b>	<input checked="" type="checkbox"/>
<b>PREQUISITES</b>	<input checked="" type="checkbox"/>	<b>FREQUENCY OF OFFERING</b>			
<b>CREDITS (including credit distribution)</b>	<input checked="" type="checkbox"/>	<b>COURSE CLASSIFICATION</b>			
<b>CROSS-LISTED</b>		Dept.		(Requires approval of both departments and deans involved. Add lines at end of form for such signatures.)	
<b>STACKED (400/600)</b> <i>Include syllabi.</i>	<input checked="" type="checkbox"/>	Dept.	BIOL	Course #	6__
<b>OTHER (please specify)</b>					

**3. 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.

<b>COURSE FORMAT:</b> (check all that apply)	<input type="checkbox"/>	1	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	<input type="checkbox"/>	5	<input checked="" type="checkbox"/>	6 weeks to full semester
<b>OTHER FORMAT (specify all that apply)</b>												
<b>Mode of delivery (specify lecture, field trips, labs, etc)</b>	Lecture, Field Trips, Labs											

**4. COURSE CLASSIFICATIONS:** (undergraduate courses only. Use approved criteria found on Page 10 & 17 of the manual. If justification is needed, attach on separate sheet.)

H = Humanities	<input type="checkbox"/>	S = Social Sciences	<input type="checkbox"/>		
Will this course be used to fulfill a requirement for the baccalaureate core?		<b>YES</b>	<input type="checkbox"/>	<b>NO</b>	<input checked="" type="checkbox"/>

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

O = Oral Intensive, Format 6 also submitted	<input type="checkbox"/>	W = Writing Intensive, Format 7 submitted	<input type="checkbox"/>	Natural Science, Format 8 submitted	<input type="checkbox"/>
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**5. COURSE REPEATABILITY:**

Is this course repeatable for credit?	<b>YES</b>	<input type="checkbox"/>	<b>NO</b>	<input checked="" type="checkbox"/>
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Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).	
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How many times may the course be repeated for credit?	0	<b>TIMES</b>
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If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course?		<b>CREDITS</b>
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**6. CURRENT CATALOG DESCRIPTION AS IT APPEARS IN THE CATALOG:** including dept., number, title and credits

## BIOL F475 Vegetation Description and Analysis

2 Credits Offered Fall Even-numbered Years

Methods of vegetation science including sampling, classification, gradient analysis, ordination, field description and mapping. Field trips to the plant communities of interior Alaska. Special fees apply. Prerequisites: BIOL F474 or other general ecology course; permission of instructor. (1+3)

7. **COMPLETE CATALOG DESCRIPTION AS IT WILL APPEAR WITH THESE CHANGES:** (Underline new wording ~~strike through old wording~~ and use complete catalog format including dept., number, title, credits and cross-listed and stacked.) PLEASE SUBMIT NEW COURSE SYLLABUS. For stacked courses the syllabus must clearly indicate differences in required work and evaluation for students at different levels.

## BIOL F4\_\_ Vegetation Description and Analysis

3 Credits Offered Fall Even-numbered Years

Methods of vegetation science including sampling, classification, gradient analysis, ordination, field description and mapping. Field trips to the plant communities of interior Alaska. Special fees apply. Prerequisites: BIOL 239 or BIOL 233 or BIOL 271, or BIOL 331 or permission of instructor. Stacked with BIOL F6 (2+3)

8. **IS THIS COURSE CURRENTLY CROSS-LISTED?**

YES/NO ☒ No

If Yes, DEPT

NUMBER

(Requires written notification of each department and dean involved. Attach a copy of written notification.)

9. **GRADING SYSTEM:** Specify only one

LETTER: ☒ X

PASS/FAIL: ☐

10. **ESTIMATED IMPACT**

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

Course will require a TA capable of helping with the field sampling exercises, soils labs, and especially with computer software and hardware in the computer lab.

11. **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 ☐

Yes ☐

X ☒

Yes, this course was taught as proposed as a special topics course in Fall 2008, as BIOL F493/693. We used resources in the BioSciences Library, and some articles on e-reserve through Rasmuson Library.

12. **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 change to a stacked course should have a positive impact in that graduate students can now take the course for credit and this should also help with enrollment in the course.

13. **POSITIVE AND NEGATIVE IMPACTS**

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

### Positive impacts:

1. The course will allow graduate students, who have been the main users of the course, to get graduate credit. The course is essential to students wanting to do vegetation analysis as part of their thesis research. This should increase the course enrollment.
2. Expanding the course to three credits is more in line with workload expected of the students and should also increase the attraction of the course to both undergraduate and graduate students.
3. This course and two others proposed offer a more concentrated focus on the vegetation of Alaska's boreal and arctic environments, and should be attractive to students seeking careers in State and National agencies devoted to natural resource management, particularly those needing knowledge of vegetation.

### Negative impacts:

The course should not negatively affect other courses, programs, or departments.

### ***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. If you ask for a change in # of credits, explain why; are you increasing the amount of material covered in the class? If you drop a prerequisite, is it because the material is covered elsewhere? If course is changing to stacked (400/600), explain higher level of effort and performance required on part of students earning graduate credit. 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 proposed changes will improve the quality of UAF education.**

a. The stacking will make this course attractive to graduate students. The course has a stronger emphasis on data analysis than in the past, and uses state-of-the-art analytical software. Two of the 8 students taking this course last time were graduate students and many of the students in past classes were graduate students as well as students from government agencies. These students can use these skills in vegetation description and analysis whenever they need to collect or understand vegetation data.

b. Increasing the course credits is needed because in the past students complained of the workload in comparison to the credit received when offered as a two-credit course. The additional lecture is needed to cover fully cover the material presented and allow for class discussion.

#### **A higher level of effort is expected of graduate students compared to undergraduates:**

a. Oral presentations: Graduate students are expected to select a broader topic and use a greater variety of scientific sources for their presentation (>15 sources for graduate students vs. 3-5 sources for undergraduates). Graduate students will have a total of 200 possible points for the oral presentation vs. 100 points for the undergraduate students.

b. Final papers: Graduate students will be expected to do a broader analysis of the class data or use data from their thesis or other source, and provide a higher level of synthesis. Graduate students will be expected to use information from several different vegetation analytical approaches whereas the undergraduates will focus on a single analytical approach using the class data. Word limits for graduate students are greater (2500-3500 words vs. 1000-2000 words for undergraduates). Graduate students will have a total of 300 possible points for the final paper vs. 100 points for the undergraduate students.

c. Journal article discussions: The graduate students will summarize and provide a brief analysis of the papers from the literature to the rest of the class. Each graduate student will present one paper during the course in a one-hour discussion period. All students (graduates and undergraduates) are expected to read all the papers and participate actively in the discussion. This is worth 100 points to graduate students only.

**APPROVALS:** See attached signatures.

	Date	
Signature, Chair, Program/Department of:		

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

	Date	
Signature, Dean, College/School of:		

	Date	
Signature of Provost (if applicable)		

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

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

	Date	
Signature, Chair, UAF Faculty Senate Curriculum Review Committee		

### 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. If you ask for a change in # of credits, explain why; are you increasing the amount of material covered in the class? If you drop a prerequisite, is it because the material is covered elsewhere? If course is changing to stacked (400/600), explain higher level of effort and performance required on part of students earning graduate credit. 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 proposed changes will improve the quality of UAF education.**

a. The stacking will make this course attractive to graduate students. The course has a stronger emphasis on analysis than in the past, and uses state-of-the-art analytical software. Two of the 8 students taking this course time were graduate students and many of the students in past classes were graduate students as well as student government agencies. These students can use these skills in vegetation description and analysis whenever they to collect or understand vegetation data.

b. Increasing the course credits is needed because in the past students complained of the workload in comparison to the credit received when offered as a two-credit course. The additional lecture is needed to cover fully cover the material presented and allow for class discussion.

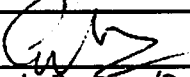
**A higher level of effort is expected of graduate students compared to undergraduates:**


a. Oral presentations: Graduate students are expected to select a broader topic and use a greater variety of scientific sources for their presentation (>10 sources for graduate students vs. 3-5 sources for undergraduates). Graduate students will have a total of 200 possible points for the oral presentation vs. 100 points for the undergraduate students.

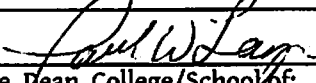
b. Final papers: Final papers will attempt to synthesize data analyzed in the class. Page limits for graduate students are greater (15-20 pages vs. 10 p. for undergraduates). Graduate students will also be expected to use information from several different vegetation analytical approaches or apply the approaches to their own datasets, whereas the undergraduates will focus on a single analytical approach using the class data. Graduate students will have a total of 200 possible points for the final paper vs. 100 points for the undergraduate students.

c. Journal article discussions: The graduate students will be expected to lead the discussions for the journal articles (with help and guidance from the instructor). Graduate students will receive a total of 20 possible points for each discussion (10 papers for 200 possible points vs. 10 points each (100 total) for undergraduate students.

### APPROVALS:

Signature, Chair, Program/Department of:  Date: Oct 3, 2011

Signature, Chair, College/School Curriculum Council for:  Date: 10/4/11  
CNSM

Signature, Dean, College/School of:  Date: Oct 5, 2011  
CNSM

Signature of Provost (if applicable): \_\_\_\_\_ Date: \_\_\_\_\_  
Offerings above the level of approved programs must be approved in advance by the Provost.

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

Signature, Chair, UAF Faculty Senate Curriculum Review Committee: \_\_\_\_\_ Date: \_\_\_\_\_

**ATTACH COMPLETE SYLLABUS (as part of this application).**

Note: The guidelines are online: <http://www.uaf.edu/uafgov/faculty/cd/syllabus.html>

The department and campus wide 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 change will 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.)

**11. Support Services:**

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

**12. Disabilities Services:**

The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials.

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

## **Preliminary Syllabus for MAJOR COURSE CHANGE, BIOL 4\_\_ / 6\_\_, Vegetation Description and Analysis, Fall 2012**

### **1. Course Information**

**Title:** Vegetation Description and Analysis

**Course number:** BIOL 4\_\_ / 6\_\_

**Credits:** 3 credit-hours, 2 lecture + 3 laboratory

**Prerequisites** BIOL 115, BIOL 116; BIOL 239 Introduction to Plant Biology, or BIOL 271 Principles of Ecology, or BIOL 331 Plant Systematics, or permission of instructor

**Location:** lectures – Irving, **Room TBA** I; Field Trips – mostly within North Campus Lands; Indoor laboratories – Irving I, Bunnell and O'Neill.

**Meeting Time:** **T, Th TBA**

### **2. Instructor**

**Prof. Skip Walker**, Prof. D.A. (Skip) Walker, Alaska Geobotany Center, University of Alaska Fairbanks, Arctic Health Building, Room 254, 474- 2460, [dawalker@alaska.edu](mailto:dawalker@alaska.edu). Office hours: T, Th 9:00-11:00 and 3:30-5:00 pm.

### **3. Course Readings/Materials**

The required reading material is a set of journal articles that will be available on the class web site. Recommended reading will include sections of books, relevant journal articles and reports to supplement the material covered in class. This reading is recommended to broaden students' understanding of the topics and fill any gaps in students' background, and is required if a student is having difficulty understanding a topic. Some materials are included so students can peruse and become familiar with the reference material available.

Those materials that are available electronically will be put on the class web site <http://www.geobotany.uaf.edu/teaching/biol475/index.shtml> (**will be updated**). Books will be put on reserve in the Biosciences Library in the Arctic Health Building. These will include:

Kent, M. and P. Coker. 1996. *Vegetation description and analysis: a practical approach*. New York, John Wiley, 363 pp.

Mueller-Dombois, L. D. and Ellenberg, H., 1974: *Aims and Methods of Vegetation Ecology*. John Wiley and Sons, New York (reprinted in 2003 by Blackburn Press)

McCune, B. and Grace, J., 2002: *Analysis of ecological communities*. Gleneden Beach, Oregon: MjM Software Design, 300 pp.

Tichý L and Holt J 2011 JUICE program for management, analysis and classification of ecological data, 2nd Edition of Program Manual (Brno: Vegetation Science Group, Masaryk University)

#### **Required supplies:**

10x-power hand lens for field identification of plants

8.5 x 11 inch notebook for field reference collection and methods notes

Clothing adequate for spending several hours outdoors conducting field work (including day pack, rain gear (top & bottom), waterproof boots, coat/sweater, hat, gloves)

### **4. Course Description**

**Catalog description:**

## BIOL F4\_\_ Vegetation Description and Analysis

3 Credits      Offered Fall Even-numbered Years

Methods of vegetation science including sampling, classification, gradient analysis, ordination, field description and mapping. Field trips to the plant communities of interior Alaska. Special fees apply. Prerequisites: BIOL 239 or BIOL 233 or BIOL 271, or BIOL 331 or permission of instructor. Stacked with BIOL F6\_\_ (2+3)

**Expected proficiencies for taking the course:** Ability to read, comprehend, and assimilate written information in scientific texts and journals; basic math skills (including algebra); basic word processing and spreadsheets); basic writing and presentation skills, background in biology, ecology, and plants and/or other biological or Earth sciences such as geology, geomorphology, zoology, climatology and remote sensing.

### **More detailed description:**

This course will give students a broad overview of concepts and methods of description and analysis of plant community data. These methods include vegetation sampling, classification, and gradient analysis, and exploration of the relationship of species distributions to their environment. Most of the class will be devoted to obtaining comprehensive skills for vegetation sampling and analysis. The first 4-6 labs will be in the field before the weather turns cold and snowy. The second part of the course will be in the herbarium, soils lab, and computer lab, where we will analyze the data collected from the field.

Students will collect a set of field data that they will use for analysis and production of an oral report and final written report that will be due at the end of the course. There are no exams. There are several graded exercises that are essential to understanding the material.

## **5. Course Goals**

**General course goals:** The goals for the course are to provide students with a comprehensive set of sampling and analysis methods used in vegetation science.

**Student outcomes:** (1) Students should become proficient in a suite of field sampling techniques including the Braun-Blanquet relevé method, several point sampling methods, and the point-center quarter method, the methods of making a vegetation database and use of classification and ordination software (TurboVeg, JUICE and PC-Ord) and (2) to develop an understanding and appreciation of vegetation, its composition, structure and function, and diversity.

## **6. Instructional Methods**

### **Lectures:**

*Mondays:* Short lectures on practical methods will precede the Monday lab session. These lectures will cover field sampling methods, herbarium and plant identification, soils analysis, methods of ordination, vegetation classification, and vegetation mapping.

Wednesdays will be devoted to hour long lectures and discussion of the history, theory and approaches to sampling and vegetation analysis. Several of the Wednesday sessions will have Literature Discussion Sessions led by graduate students (see below), or student oral presentation (also see below).

Students are expected to attend the lectures and read the assigned literature. Students will need to read the assigned material to understand the methods covered in this course.

**Labs:**

Monday laboratories will be spread among the following activities: 6 labs for field sampling methods; 1 lab for herbarium and plant identification; 1 lab for soil analysis; 6 labs for vegetation analysis methods: 3 for ordination, 2 for classification, and 1 for vegetation mapping.

**Lab write-ups:**

There will be 5 lab write-ups. These are designed to give the students an opportunity to apply analytical skills they have learned to data they have collected. These analyses will contribute to the oral and written presentations summarizing the data.

**Literature discussion sessions led by graduate students:**

Starting in October, students will read one outstanding paper per week that uses vegetation science methods. **An assigned graduate student will present a 20-minute summary of the paper to the class.** These presentations can include slides of key figures and major discussion points. Presenters are expected to bring other literature to bear on the topic, and discuss the relevance and significance of the paper. These overviews should focus on the principal points of the paper and major concepts, but also discuss methods that shed light on methods taught in the course. Students making the presentation will be graded on criteria that will be handed out early in the semester.

Following the presentation, the speaker will answer questions, followed by an open discussion. All students are expected to read the assigned paper and actively participate in the discussion. All students will be graded on their full participation in the presentations and discussions.

**Vegetation Description & Analysis Notebook:**

Each student will fill out a notebook defining, in his/her own words the methods covered in the class and observations made during the field component of the course. The purpose of this assignment is for each student to finish the class with a methods book that he/she can refer to in the future, including definitions, methods, field observations, field collections, examples, references, etc. The notebooks can also contain lecture notes if desired. The notebook should be filled with whatever material the student finds most helpful. The notebook will be checked twice during the semester, and graded at the end.

**Final papers:**

**Undergraduate students:** Each undergraduate student will choose one analytical approach used in the class (classification, ordination, descriptive statistics of field data), and write a 1000-2000 paper describing the application of that approach to the data collected by the class in the North Campus Lands. The paper can include the results developed as part of the class assignments. The paper will be in standard scientific format, with an abstract, introduction, methods, results, discussion, conclusion, acknowledgements and references, with a minimum of 5 peer-reviewed journal articles referenced.



**Graduate students:** Graduate students will choose 2-3 analytic approaches used in the class (or other approaches if appropriate) and apply them either to the North Campus Lands data or another appropriate data set, for example data for a thesis. These papers should present a thorough analysis of the data with considerable part of the paper devoted to background, questions, hypotheses and thorough description and analysis of the data; in other words the paper should synthesize material from a wide spectrum of the class analytical methods applied to either the vegetation of the UAF North Campus Lands, or a data set of the students choosing. The paper should be 2500-3500 words, in standard scientific format, with an abstract, introduction, methods, results, discussion, conclusions, acknowledgements and references, and figures and tables at the end of the paper, with a minimum of 15 peer-reviewed journal articles.

### Final oral presentations:

Each student will present their final paper to the class in a conference-style oral presentation, for about 20 minutes for undergraduate students (30 minutes for graduate students), with 10 minutes for questions. Criteria for grading both the written and oral presentations that be handed out early in the semester.

## 7. Course Schedule and Assignments

### Readings:

**KC** = Kent, M. and Coker, P., 1992: *Vegetation Description and Analysis: A Practical Approach*. New York: John Wiley and Sons.

**MD&E** = Mueller-Dombois, L. D. and Ellenberg, H., 1974: *Aims and Methods of Vegetation Ecology*. Boca Raton: CRC Press.

**McC&G** = McCune, B. and Grace, J., 2002: *Analysis of ecological communities*. Gleneden Beach, Oregon: MjM Software Design, 300 pp.

Date	Topics/Activities (labs are highlighted in gray)	Reading assignments	Assignments DUE
Mon 8 Sept.	Introduction to vegetation sampling		
Mon 8 Sept.	Field lab 1 Choosing sample sites, minimal area sampling.  Wear appropriate clothing for being outside for several hours. May require rain gear (jacket and pants), water-proof boots, coat, hat, gloves. Bring hand lens, notebook, pencil.		Be familiar with identification of common boreal plants
Wed 10 Sept.	Major considerations in vegetation sampling	KC Chapter 1	

Mon. 15 Sept.	11:45 - 12:00 lecture 1-5 pm Field lab 2 Frequency & cover in quadrats  Bring field gear as for Lab 1	MD&E Chapter 6, pp. 67-80	Lab Report #1 due Minimal area sampling
Wed. 17 Sept.	Point sampling methods, density, frequency, cover, line transects, point quadrats, point frame	K&C Chapter 2	
Mon. 22 Sept.	11:45 - 12:00 lecture 1-5 pm Field lab 3 Frequency & cover using point and transect methods  Bring field gear as for Lab 1	MD&E Chapter 6, pp. 80-92	Lab Report #2 due Calculating frequency from point data
Wed. 24 Sept.	Introduction to phytosociology approach	KC Chapter 7 MD&E Chapter 5	Initial notebook check
Mon. 29 Sept.	11:45 - 12:00 lecture 1-5 pm Field lab 4 Relevé sampling  Bring field gear as for Lab 1	Westhoff & van der Maarel	
Wed. 1 Oct.	1. Diversity measures 2. Graduate student: Literature presentation #1		
Mon. 6 Oct.	Forest sampling, plot-count methods and plotless sampling methods	MD&E Chapter 7	Data entry for relevés due
Mon. 6 Oct.	Field lab 5 Forest sampling methods	Bring field gear as for Lab 1 (but warmer!)	
Wed. 8 Oct.	1. Descriptive statistics for vegetation data 2. Graduate student: Literature presentation #2	KC Chapter 4	
Mon. 13 Oct.	Site factors Soil sampling & description	Barbour et al. Chapter 17 Harden paper	
Mon. 13 Oct.	Lab 6: Species relevé data entry		Lab report #3 due Calculating forest structure data from point- centered-quarter data
Wed. 15 Oct.	1. Direct gradient analysis, weighted averaging 2. Graduate student: Literature presentation #3	KC Chapter 5, pp. 162-169 McC&G Chapter 5, 18	Mid-term notebook check

Mon. 20 Oct.	Flora of Alaska boreal forests and tundra, plant identification keys		
Mon. 20 Oct.	Lab 7 - Herbarium: plant identification		
Wed. 22 Oct.	1. Indirect ordination, polar ordination 2. Graduate student: Literature presentation #4	KC Chapter 5, pp. 169-185 McC&G Chapters 13, 17	
Mon. 27 Oct.	Soil description, analysis and classification		
Mon. 27 Oct.	Lab 8 - Soils analyses: pH, grain size, soil color		
Wed. 29 Oct.	1. Ordination: Principal components analysis 2. Graduate student: Literature presentation #5	KC Chapter 5, pp. 186-214 McC&G Chapters 14	
Mon. 3 Nov.	Introduction to PC-ORD	PC-ORD booklet	Data entry – soils data. Turn in complete data set for ordination. Topics for oral presentations approved
Mon. 3 Nov.	Lab 9 - Computer lab: Polar ordination and PCA		Data entry – site factors for relevés check
Wed. 5 Nov.	1. Ordination: correspondence analysis, detrended correspondence analysis, discriminant analysis 2. Graduate student: Literature presentation #6	KC Chapter 6, pp. 215-226 McC&G Chapters 19, 20, 26	
Mon. 10 Nov.	Bringing the environmental data into the ordination. Software for relevé data - TURBOVEG Student presentation #1		
Mon. 10 Nov.	Lab 10 - Computer lab: Ordinations with environmental data, DCA, CCA		
Wed. 12 Nov.	Ordination: canonical correspondence analysis, nonmetric multi-dimensional scaling, Student presentation #2	KC Chapter 6, pp. 227-244 McC&G Chapters 16, 21	
Mon. 17 Nov.	Numerical classification Student presentation #3		Lab Report #4 due Ordination
Mon.	Lab 11 - Computer lab: NMDS,		

17 Nov.	cluster analysis, TWINSpan		
Wed. 19 Nov.	Table sorting methods and software TURBOVEG, JUICE Student presentation #4	KC Chapter 8 McC&G Chapters 10-12, 25	
Mon. 24 Nov.	Review of ordination & classification methods Student presentation #5	McC&G Chapter 22	Topics for final paper approved
Mon. 24 Nov.	Lab 12 - Computer lab: Table sorting, analyses for final paper		
Wed. 26 Nov.	Discussion of methods used in class papers and presentations Optional class		Lab Report #5 due Sorted Table analysis
27-30 Nov.	THANKSGIVING BREAK		
Mon. 1 Dec.	Student presentation #6, 7		
Mon. 1 Dec.	Lab 13 – Vegetation mapping: different imagery, scales, legends		
Wed. 3 Dec.	Student presentations #8-9	Paper #12	
Mon. 8 Dec.	Student presentations #10-11		Notebooks due
Mon. 8 Dec.	No lab. Work on papers		
Wed. 10 Dec.	Last lecture – Searching for the effects of climate change on Arctic vegetation		Final paper due 15 Dec.

## 8. Course Policies

### Academic integrity:

Anyone observed cheating on an examination will receive a “0” for that examination. Anyone found to have used someone else’s work without crediting that person (plagiarizing) will receive a “0” for the assignment. When in doubt, always identify your sources. This applies to all material derived from the web. Please speak with me if you have any questions about how to properly use other people’s work.

For additional detail, see

<http://www.uaf.edu/library/instruction/handouts/Plagiarism.html>

### Attendance & participation:

Students are expected to attend every class and lab, which will begin promptly. Attendance will be taken, and 10 points given for on-time attendance. Late students will receive 5 points.

Students are expected to participate in class discussions. Both attendance and participation will contribute to the final grade.

## 9. Evaluation

### Grades:

Grades will be based on the following criteria:	Undergraduate	Graduate
Attendance (30 @10 points/ class)	300	300
Lab report assignments (5 @100 points/report)	500	500
Vegetation description & analysis notebook	200	200
Final paper	100	300
Oral presentation to class	100	200
Graduate student literature presentation		200
TOTAL	1200	1700

### Undergraduate student expectations and grading:

All students are expected to accomplish the following:

- (a) Attend all lectures, literature discussion groups, labs and exams on time There will be no make-up for missed classes and half credit for late attendance. Good reasons for missing the classes will be accepted if cleared with the instructor before the class. (10 points for each for 30 sessions, 300 total points).
- (b) Written lab reports describing the methods and the results of the exercise. Five reports @100 points = 500 total points). Expectations for lab reports will be provided at each lab.
- (c) Vegetation descriptions and analysis notebook (see above for description and contents). The notebook will be checked twice during the semester and handed in at the end for a grade (150 points).
- (d) The final paper (described above in 6) is worth 100 points for undergraduate students. Guidelines for the presentations and grading criteria for the presentations will be handed out early in the semester. Late papers will receive a deduction of 10 points of the total for every day late and no credit beyond 3 days late. Students should arrange for an incomplete grade if they cannot meet this deadline.
- (e) Twenty-minute oral presentation of the final paper (described above in 6) is worth 100 points for undergraduate students. Guidelines for the presentations and grading criteria for the presentations will be handed out early in the semester.

### Graduate student expectations and grading:

Graduate students will be graded according to the same criteria as the undergraduate students except for the following:

- (d) The final paper for graduate students is expected to use 2-3 analytical methods, and be more of a synthesis of either the class sampling activities, or the analysis of data set of the student's choosing. The paper is worth 300 points.
- (e) The final oral presentation for graduate students will be somewhat longer than for undergraduates (30 minutes), cover more material, and provide a more thorough analysis of the vegetation of the topic. The presentation is worth 200 points.
- (f) The graduate student literature presentations (described above in 6) are worth 100 points.

Note: These criteria may be modified somewhat as the course progresses. Final grades will be as follows: greater than or equal to 90% = A; 80-89% = B; 70-79% = C; 60-69% = D; < 60% = F.

Assignments are due at the beginning of class on the days shown in the syllabus. 5% of the total points will be deducted for every day an assignment is late.

### **10. Support Services**

Students are encouraged to contact the instructor with any questions, or to clarify the lecture or the assignments. I will be happy to review drafts of assignments and answer questions any time. Arctic Health, Room 254. Phone 474-2460, dawalker@alaska.edu. Home phone: 451-0800.

### **11. Disabilities Services**

The instructor will work with the Office of Disabilities Services (208 WHIT, 474-5655) to provide reasonable accommodation to students with disabilities. Any student needing special accommodation should talk with the instructor before the class or lab in question. These discussions will be held confidential.