

Submit original with signatures + 3 copies

TRIAL COURSE OR NEW COURSE PROPOSAL

SUBMITTED BY:			
Department	Science	College/School	CRCD

Prepared by	Daniel Solie	Phone	474-2616
-------------	--------------	-------	----------

Email Contact	djsolie@alaska.edu	Faculty Contact	Dr. Daniel Solie
---------------	--------------------	-----------------	------------------

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

1. ACTION DESIRED (check one):	Trial Course	X	New Course	
---------------------------------------	--------------	---	------------	--

2. COURSE IDENTIFICATION:	Dept	SCIA	Course #	194	No. of Credits	6
----------------------------------	------	------	----------	-----	----------------	---

Justify upper/lower division status & number of credits:	<p>This introductory, distance-delivered physics course is designed for the underserved college and high school student population in the remote and often road-less villages of Alaska where a face-to-face physics course is rarely available.</p> <p>Problem solving difficulty is comparable to other 100 level UAF physics courses. This course uses examples from traditional and modern high-latitude life in the wild, to teach problem solving and explain basic concepts in physics.</p> <p>The late-start, six-credit (5 credits lecture, 1 credit lab) course which bridges the fall and spring semesters, allows increased content delivery as well as more adequately meeting the scheduling challenges of rural students across Alaska.</p> <p>Lecture: (210 contact min/week) x (23 weeks) = 4830min/800min/Credit) = (>5cr.)</p> <p>Laboratory: ((70 contact min/week) x (22 weeks) = 1540min) + 480min(GCE) + 480min(Experiment Session)) = (2500min)/(2400min/Credit)) = (>1cr.)</p>
---	---

3. PROPOSED COURSE TITLE:	Bush Physics for the 21st Century
----------------------------------	-----------------------------------

4. CROSS LISTED? YES/NO	No	If yes, Dept:		Course #	
--------------------------------	----	---------------	--	----------	--

(Requires approval of both departments and deans involved. Add lines at end of form for such signatures.)

5. STACKED? YES/NO	YES/NO	If yes, Dept.		Course #	
---------------------------	--------	---------------	--	----------	--

6. FREQUENCY OF OFFERING:	Every Year
----------------------------------	------------

(Every or Alternate) Fall, Spring, Summer — or As Demand Warrants

7. SEMESTER & YEAR OF FIRST OFFERING (if approved)	Fall 2011/Spring 2012
---	-----------------------

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 one)

<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
--------------------------	---	--------------------------	---	--------------------------	---	--------------------------	---	--------------------------	---	-------------------------------------	--------------------------

OTHER FORMAT (specify)

The course is 23 weeks long Oct. - April covering fall and spring semesters. The course lectures will also be available on UAF iTunes University .

Mode of delivery (specify lecture, field trips, labs, etc)

Distance Delivery via Video Conference (4 days/week) and UAF Blackboard (eLive by appointment)
 3 days lecture, 1 day lab /week
 In-depth experiment session conducted on location with instructor or TA
 Group Collaborative Experiment (student take local data to determine latitude, and collaborate with students in other villages to determine circumference of the earth)

9. CONTACT HOURS PER WEEK:

210 min. /wk	LECTURE min/weeks	70 min /wk	LAB min. /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/cd/credits.htm> for more information on number of credits.

OTHER HOURS (specify type)

(480+min)(Group Collaborative Experiment) + (480+min)(Experiment Session)

10. COMPLETE CATALOG DESCRIPTION including dept., number, title and credits (50 words or less, if possible):

CRCO, SCIA 194, Bush Physics for the 21st Century, (6 credits)

Bush Physics for the 21st Century (BP21) is a six-credit (October - April), late-start distance-delivered introductory, foundational physics course with a lab component. The course is place-centered, and introduces physics through pertinent and culturally connected examples from traditional and modern high-latitude life in Alaska. Emphasizing problem solving, Bush Physics uses basic algebra extensively; the necessary trigonometry and vector algebra are developed in class. A primary goal of the course is to prepare rural students for success in university science and engineering degree programs.

11. 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 N = Natural Science S = Social Sciences

Will this course be used to fulfill a requirement for the baccalaureate core?

YES NO

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

O = Oral Intensive, Format 6 W = Writing Intensive, Format 7 Natural Science, Format 8

12. COURSE REPEATABILITY:

Is this course repeatable for credit?

YES

NO

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 with variable credit, what is the maximum number of credit hours that may be earned for this course?

CREDITS

13. GRADING SYSTEM:

LETTER:

X

PASS/FAIL:

14. PREREQUISITES**14. PREREQUISITES**Placement in DEVM105 or satisfactory high school Algebra 1 with instructor permission.**Additional prerequisites for High School Students:** Must have passed the Alaska High School Exit Exam, and school official/math teacher assessment of student's math preparation.These will be *required* before the student is allowed to enroll in the course.**RECOMMENDED**

High school Geometry, Algebra 2 and Trigonometry.

Classes, etc. that student is strongly encouraged to complete prior to this course.

15. SPECIAL RESTRICTIONS, CONDITIONS

None

16. PROPOSED COURSE FEES

\$None

Has a memo been submitted through your dean to the Provost & VCAS for fee approval? Yes/No

NO

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.:

DEVS F193 Spring 2008 (4cr.40767; 3cr.40839), DEVS F193 Spring 2009 (4cr. CRN 51111), SCIA 193 Spring 2010 (4cr. CRN 40549) and SCIA 193 (Fall 2010 - Spr. 2011 6cr. CRN 81090)

18. ESTIMATED IMPACT

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

Faculty salary and other budgetary issues are grant funded for FY 2011/12 and FY 2012/2013 and potentially longer. Newly available office space at the Interior-Aleutians Campus and video conference facilities support delivery. UAF Video Conferencing staff work closely with faculty to setup video conferencing as a normal service.

19. LIBRARY COLLECTIONS

Have you contacted the library collection development officer (ffklj@uaf.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			Use of library materials is not generally anticipated for this course, as materials and references are available on-line. However, we work closely with UAF OIT and Video Conferencing for the course delivery.
----	---	-----	--	--	---

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)

Course has been a work in progress and reviewed by CRDC Science Division in the past as a Special Topic. CRCD Science Department, Department Chair Dr. Claudia Ihl. During this requested Trial Course designation period, adoption as a 100 level course with a physics designator will be pursued through the UAF Physics Dept., CNSM

21. POSITIVE AND NEGATIVE IMPACTS

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

Positive impacts - delivers an additional science course in hard to serve region, improved success of rural students in higher level STEM classes and ultimately STEM careers.
Negative impacts - if the students get too smart they will change things.

201A 194

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.

This course is designed to meet both the spatial and scheduling challenges of distance-delivering a physics course to the underserved college and high school student population in the remote and often road-less villages of Alaska where a face-to-face physics course is rarely available.

- This course uses examples from traditional and modern high-latitude life in the wild, to teach problem-solving and explain basic concepts in physics.
- This course will add another introductory science course to provide rural students more options and better prepare them for further STEM coursework.
- For dual/credit HS students, satisfactory completion of the course will directly equate to one full year of HS lab science credit. (6 credits = 1 year HS lab science credit)
- This course allows rural high schools with limited resources and few qualified science teachers, offer a rigorous and mathematically challenging science course in physics to their students taught by a qualified university instructor.
- The lab components are relatively low cost and highly portable (no chemicals to send through the mail for example).
- This course addresses the need for improved math and physical science preparation before entering B.S. STEM degree programs
- This course strengthens workforce development and supports efforts by public agencies and private industry.
- This course includes 21st Century examples of high-latitude technology, expose students to exciting STEM career possibilities.
- This course is a feeder for STEM degree programs at UAF.

APPROVALS:

	Date	
--	------	--

Signature, Chair, Program/Department of: _____

<i>Clara J. L.</i>	Date	3-8-2011
--------------------	------	----------

Signature, ~~Division~~ Chair CRCD of: *Dept.* Dept. of Science, chair

<i>Steve R. Cude</i>	Date	3/9/2011
----------------------	------	----------

Signature, Chair, College/School Curriculum Council for: *CRCD Academic Council*

<i>Bernice</i>	Date	3/10/11
----------------	------	---------

Dean, College of Rural + Community Development

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	
--	--

--

ADDITIONAL SIGNATURES: (if required)

	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).

Note: syllabus must follow the guidelines discussed in the Faculty Senate Guide <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:

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

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

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

3. Course readings/materials:

Ø Course textbook title, Ø author, Ø edition/publisher.

Ø Supplementary readings (indicate whether Ø required or Ø recommended) and

Ø any supplies required.

4. Course description:

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

5. Ø Course Goals (general) and Ø Student Learning Outcomes (more specific)

6. Instructional methods:

- Ø 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.).

7. Course calendar:

- Ø 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.

8. Course policies:

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

9. Evaluation:

- Ø Specify how students will be evaluated, Ø what factors will be included, Ø their relative value, and
- Ø how they will be tabulated into grades (on a curve, absolute scores, etc.)

10. Support Services:

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

11. 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.

- Ø State that you will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities."

Syllabus for the Proposed SCIA 194 TRIAL Course: *Bush Physics in the 21st Century* (6 credit distance-delivered course including a laboratory component)

D. Solie
February 2011

1) Course Information:

Title: *Bush Physics for the 21st Century*

Course Number: SCIA 194 Science Course, Late Start-Fall /Spring 2011/12, CRN # (TBD)

Credits: 6 (5 credits lecture + 1 credit Laboratory)

General Prerequisites: Placement in DEVM105 or satisfactory high school Algebra 1 with instructor permission.

Additional prerequisites for High School Students: Must have passed the Alaska High School Exit Exam, and school official/math teacher assessment of student's math preparation.

Recommended: High school Geometry, Algebra 2 and Trigonometry.

Course Dates:

Fall Late-Start Date: 3 October 2011 (Fall Segment: 3 October – 15 December)

Spring Early-End Date: 26 April 2012 (Spring Segment: 19 January – 26 April; 2 week spring break 12-23 March). A total of 23 weeks of instruction (including the experiment component).

Tentative Class Times: 3:00 PM – 4:10 PM, Monday - Thursday

Location: Distance Delivery via Video-conference and UAF BlackBoard (BB) and UAF iTunes University. Delivery location for videoconference sessions is AV Conf. Room, 107 Harper Building, UAF.)

Audio class connection: 1-800-919-9601 (or 907-450-8390)

eFAX Number: 907-474-3176 (assignment submission)

2) Instructor: Dr. Daniel Solie

Office: 101F Harper Bld. (Tel. 907-474-2616)

Email: djsolie@alaska.edu

Office Hours: (101F Harper Bld. /Tel./email /e-Live by arrangement): TBA

Teaching Assistant: Vanessa Spencer

Email: vspence6@alaska.edu

3) Course Materials:

Required Text: *Physics A World View*, Kirkpatrick/Francis (7th edition) Thompson, Brooks/Cole (Pub.)

BlackBoard Site: course readings, instructor notes, class homework assignments, video clips, laboratory exercises and information and web links are available on the course Black Board site, or will be emailed to students.

iTunes U: Past course lecture and lab introduction sessions will be available on the UAF iTunes U site.

Calculators: You will need a calculator for homework and lab, (calculators will not in general be necessary in exams). A basic, simple scientific calculator with trigonometric, exponential, and logarithmic functions is all that you need but buy a fancy one if you want – just learn how to use it!

Laboratory supplies: will be shipped to the student (cost currently grant covered).

ALL STUDENTS: **Computer with internet access and a printer** (to connect to Blackboard, E-live, view video-clips, do web searches, email, as well as write reports etc.)

DISTANCE STUDENTS: **Videoconference access and means to scan and transmit homework and exams as pdf files.**

In addition: a 3 ring binder, course notebook and bound laboratory notebook are strongly recommended.

4) Course Description:

Bush Physics for the 21st Century (BP21) is a six-credit, late-start distance delivered introductory physics course with a lab component. BP21, (after the Northern colloquial term “*Bush*” meaning wilderness) is designed for college and high school students in the remote and often road-less villages of Alaska. Loosely analogous to “space” or “geophysics”, BP21 is place-centered, and introduces physics through pertinent and culturally connected examples from high-latitude wilderness life. This course is open to all students, however, its primary target are those in rural Alaska, where a face-to-face physics course is rarely available. These include students at UA rural campuses and centers working toward associate science degrees as well as those preparing to enter STEM degree programs at the UA main campuses, and high school students in the small village and rural schools.

The late-start, six-credit course which bridges spring and fall semesters, allows increased content delivery as well as more adequately meeting the scheduling challenges of rural students across Alaska. The course is delivered via videoconference, and web-based UAF BlackBoard tailored to the needs of remote students. Students will complete simple hands-on lab experiments during each unit. In addition, students are teamed and required to perform a much more involved experimental study with the results presented by teams at the conclusion of the course. Students participating in the new group research experiment collaborate with others in the course and use basic scientific measurements to precisely locate their village and determine the size of our planet.

Course Content: Emphasizing problem solving, BP21 uses basic algebra extensively; the necessary trigonometry and vector algebra are developed in class. Problem solving difficulty is comparable to other 100 level UAF physics courses. This course emphasizes the concepts of physics and problem solving with a focus on examples from traditional and modern high-latitude life in the remote areas of Alaska.

- Topics covered:
 - Using observation, units, measurement and math to understand physical interactions and motions (or what is physics?).
 - Describing and Explaining Motion and solving problems using Newton's Laws of Motion, Momentum and Energy.
 - A brief introduction to Fluids and Thermodynamics.
 - Vibrations, Waves, Sound, and Light
 - Gravity and topics in Relativity
 - Electricity, Magnetism and Electromagnetic Interactions.
 - An introduction to selected topics in Atomic physics, Nuclear Radiation, Astronomy and Space
- The text for the course is: *Physics: A World View* by Kirkpatrick/Francis (7th edition). Chapters (topics) we will cover in the text are:
 - Chap.1-4 and 6-8 (Motion, Momentum, Newton's Laws, Work and Energy);
 - Chap. 5 (Gravity), and sections from Chap. 9-10 (Relativity);
 - Chap. 11-13 (Matter and Thermodynamics);
 - Chap. 15-19 (Waves, Sound and Light);
 - Chap. 20-22 (Electricity, Magnetism and Electromagnetism);
 - Selected topics from chapters 23-26 (Modern Physics).

5) Academic Goals (general):

The goal is to develop and demonstrate proficiency in applying the concepts introduced to mathematically solve the range of physics problems covered in this course. In addition, the physical reasoning and problem solving skills developed will improve the student's general intellectual agility and critical interpretation of scientific information and issues outside the classroom. The course also provides students with an introduction to science, technology, engineering and math (STEM) research and careers.

6) Student Learning Outcomes: (specific)

The specific learning outcomes of this course are:

1. Demonstrate a understanding of theoretical concepts (listed above) presented in lectures and text and lab through written assignments and exams and using mathematics
2. Demonstrate a scientific understanding of physical experiment using words, mathematics, graphing and excel spreadsheets in lab reports.
3. Demonstrate an introductory understanding of performing a physical experiment (design, data collection, analysis and interpretation of results)
4. Practice collaboration with other teams.
5. Practice presentation of experimental results (orally and in writing).

7) Instructional Methods:

Lecture/Recitation sessions are delivered via video conference, recorded and then posted to the iTunes University site. eLive will also be utilized to communicate with students during office hours, or special sessions. Course readings and additional online material are on UAF BlackBoard (BB). Homework, quizzes, exams and the laboratory component are outlined below.

Homework:

- Weekly homework assignments will average roughly 6-8 problems (17 homework sets total) and are due one week after assignment unless otherwise specified.
- Late homework, as a rule, will not be accepted (special exceptions: medical or technical problems beyond the student's control).
- The Bush Physics Homework Coversheet (downloadable from BBoard) should be the first page on all homework assignments with all information filled out. On subsequent pages, include your name, homework assignment and page number. If turning in homework as hardcopy, staple pages together.
- Neatness is important. Messy, difficult-to-read work will result in a lower score. I encourage you to start each problem on a fresh sheet of paper unless the problems are very short.
- Show all your steps in your homework problem solutions so the paper grader can give partial credit. No credit will be given if no work is shown.
- Your NAME is very important. If it is not included you will probably not get credit for the work.
- Note: doing and turning in homework is VERY important in a physics class – the final homework score is worth as much as an hour exam, and Final Grades are almost always proportional to homework scores: high homework means a high grade, poor homework means a poor grade.
 - UAF campus Students: Turn in Homework in person – Hardcopy (corrected hardcopies will be returned to the students the following week.
 - DISTANCE STUDENTS: It is expected that all students will be responsible for submitting homework: Homework is to be scanned, a PDF file generated and the PDF file uploaded/ to Blackboard/ or emailed to instructor/grader .

Bi-weekly QUICK Quizzes (10 quizzes): ONLINE QUESTIONS (completed on BlackBoard) Short answer problems and conceptual questions from readings and previous week.

Exams: All exams are closed book (however, an 8½ ” by 11” formula sheet will be provided). Calculators will be allowed in exams but will probably not be needed. Exams will include mostly problems with some short answer. They will cover concepts and examples from the text, lecture material, homework problems, and recitation problems. In general, time constraints will preclude going over exams in class. Solutions to exams will be posted on Black Board.

- UAF Campus Students: Take exams in class in person – Hardcopy.
- DISTANCE STUDENTS: Take exams with proctor (exams are to be FAXed or scanned & emailed to the instructor. If necessary a hard copy of exams can mailed the instructor.)

Exam Dates:

1. **Exam 1:** In Class Thursday 10 November (1 hr. covering Newton's Laws and Mechanics)
2. **Exam 2:** In Class Thursday 15 December (1½ hr. covering Fall Material—Mechanics and Thermodynamics.)
3. **Exam 3:** In Class Thursday 2 March. (1 hr. tentatively covering waves, sound, light and gravity)
4. **Final Exam:** In Class Thursday 27 April (2+ hours comprehensive: covers all fall and spring material, time: TBA)

Laboratory: Laboratory skills are crucial to success in science and engineering at the university. The Lab portion of this course will have three components:

- 1) **Weekly Lab Component (12 short Hands-on Lab Experiment/Exercises):** These shorter experiments will be introduced during the Thursday session. Equipment for labs will be mailed to the student or local school at the beginning of the course. Handouts for these experiments will be due one week after the lab is introduced in the videoconference session.
- 2) **In Depth Experiment Session Component:** (Timing for this is to be determined by each school) All students will be expected to complete one in-depth experiment. Students will work with a BP21 instructor. Writing up a science lab is a very important skill, therefore students will write a detailed lab report including an error analysis of the data and results for this experiment. Should logistics prevent students from completing the experiment session with a BP21 instructor, an alternative focus experiment will be prepared. To be successful, the minimum laboratory time required for this component is 12 hours, however, it is expected that significantly more time may be required to satisfactorily complete this component.
- 3) **Group Collaborative Research Experiment:** “Determining your Place on Earth and The Size of Our Planet.” Students in the class will participate in a group collaborative experiment to first determine the latitude and longitude of their village, and then collaborate with other teams from different villages to calculate the circumference of the earth. While students will use maps, GPS and Google Earth, they must determine their latitude and longitude from simple measurements of the sun's angle above the horizon, an accurate clock, and basic geometry and astronomy. To determine the circumference of the earth, collaboration with teams in other villages, along with a distance measurement will be necessary. Students will do an in-class presentation on a part of the experiment.

8) Course Calendar:

Bush Physics Course Schedule (Daily):

Day	Monday	Tuesday	Wednesday	Thursday
Session Time	70min. 3:00-4:10pm	70min. 3:00-4:10pm	70min. 3:00-4:10pm	70min. 3:00-4:10pm
Delivery method	Videoconference	Videoconference	Videoconference	Videoconference
Activity:	Recitation/Lecture Session (Emphasis on solving problems from current topics)	Lecture Session Present New Concepts/ Examples/ Demonstrations	Lecture Session Present Concepts/ Examples/ Demonstrations. (HW help first 10min.)	Laboratory Session: Weekly Lab exercise introduced and homework help Hour Exams (locally proctored)
Storage for asynchronous access:	<u>Black Board. (BB):</u> Problem solutions posted <u>iTunes U:</u> Video of Recitation and Lecture sessions	<u>BB:</u> Lecture notes, examples, homework assignments and solutions, links to demonstration video clips (You Tube), <u>iTunes U:</u> Video of Lecture sessions.	<u>BB:</u> Lecture notes, examples, homework assignments and solutions, links to demonstration video clips (You Tube), <u>iTunes U:</u> Video of Lecture sessions.	<u>BB:</u> Weekly Lab handout, additional photos, info on lab and links to lab video clips (You Tube) <u>iTunes U:</u> Video of lab introductions.
Required Submission	Bi-weekly Online Quiz due.	Weekly HW due New HW assigned HW scanned and email/upload to BB		Lab Report due one week after lab. Exams scanned and email/ upload to instructor

Bush Physics in the 21st Century: Weekly Calendar

WK	Text Readings	Fall: Subject/Content	weekly lab focus	Experiment Session & Group Collaborative Exp. (GCE)
1	Ch. 1 & Ch. 2	What is Physics? Units/Scale, Motion, Falling Bodies,	L1: Lab Intro. And Safety; Angles, π and $S=R\theta$	
2	Ch. 3	Trig., Vectors Newton's Laws (3-2-1)	L2: Density Lab	
3	Ch. 4	Newton's Laws cont., Circ. Motion	L3: Vector Lab	
4	Ch. 6	Momentum (Linear, Angular)	Review 1	
5	Ch. 8	Torque and Applications	Exam 1	
6	Ch. 7	Work & Energy	L4: Power	Exp. Session
7	Ch. 12	Work & Energy Applications, States of Matter, Introduce Fluids (Ch. 12).	L5: Heat Transfer	Exp. Session
8	Ch. 12	Fluid Flow and Aerodynamic Lift	None (Thanksgiving)	Exp. Session
9	Ch. 11 & 13	Intro Thermodynamics: Temperature, Ideal Gas Law and The First Law	L6: Phase Change	Exp. Session
10	Ch. 14	Thermodynamics Cont.	Review 2	
11		Review for Exam2	Exam 2	
		Holiday Break		
12	Ch. 15	Waves & Harmonic Oscillation	L7: Pendulum Lab	
13	Ch. 16	Waves & Sound	L8: Waves 1	Exp. Session
14	Ch. 17	Sound & Light	L9: Refraction Lab	Exp. Session
15	Ch. 18. Ch. 19	Light: refraction, diffraction, interference	Review 3	Exp. Session
16	Ch. 5	Universal Gravity	Exam 3 (Waves, Sound, Light)	Exp. Session
17	Ch. 10	Relativity and Space	Introduce Group Collaborative Experiment:	GCE data collection
		Spring Break (2 weeks)		GCE data collection
18	Ch. 20	Electric Charge and Force	L10: Electric Charge	GCE data collection
19	Ch. 21	Electric Current, Circuits & Power	GCE data analysis	
20	Ch. 22	Magnetism, Electromagnetic Induction	L11: Electric Circuits	

21	Ch. 23	E&M Cont., Atomic Introduction	L12: Electromagnetic Induction	
22	Selected topics Ch. 24 & Ch. 25	Nuc. Radiation Modern Physics Cont.	GCE Presentation Prep & Review	
23		Final Exam Week: Monday: GCE Web Presentations Tues & Wed: Comprehensive Review (Fall & Spring)	Comprehensive Final Exam (Thursday)	

9) Course Policies:

Attendance, while not explicitly required, is necessary and expected. The student is responsible for all material covered in classes missed. Tardiness is disruptive to the class and even more so for a distance class where verification that the student is connected is important. If video-conference connection difficulties occur or attendance/tardiness becomes a problem attendance may be taken.

Note: If you miss an exam, homework, lab, or a report deadline for a legitimate reason (illness, sports, extracurricular event or travel, communication difficulties, etc.), and a note is provided to the instructor (from school official, doctor or parent), arrangements will be made to make up the exam, assignment, or lab. However, it is the student's responsibility to both provide the documentation, and do the expected work in the time agreed upon between the instructor and the student.

Plagiarism and Cheating: Plagiarism is using what another person has written as if it was your own, without proper recognition of the other person. Plagiarism and cheating are matters of serious concern for students and academic institutions. I take them seriously as well. The UAF Honor Code (Student Code of Conduct) defines the academic standards expected at UAF and is adhered to in this class.

10) Evaluation/Grading:

Grades given will be on an A-F scale (no +/- will be assigned). The final, cumulative scores will be curved and final grades assigned on that basis. However, as a minimum, a final percentage score of 92% or above will be an A, 85% or above will be a B, 70% or above will be a C, and 60% or above will be a D and below 60% an F. (In some cases, due to the class curve, cut-off percentages for a letter grade may be lower.)

EXAM 1	(fall)	10%
EXAM 2	(end fall)	15%
EXAM 3	(spring)	10%

FINAL EXAM (end course)	20%
QUIZZES (10 –lowest (1) dropped)	10%
HOMEWORK (17 sets –lowest (2) dropped)	15%

LABORTORY:	20%
a) Weekly Labs (12-lowest (1) dropped) (10%)	
b) Experiment Session: (5 %)	
c) Group Collaborative Experiment (5%)	

TOTAL:	100%
--------	------

11) Support Services: Instructors will work with the student to obtain additional tutoring if necessary (either local one-on-one, or via distance communication).

12) Special Needs: 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. We work with the Office of Disabilities Services (203 WHIT, to 474-7043) to provide reasonable accommodation to students with disabilities.