PROPOSAL TO INITIATE, MODIFY OR DELETE A COURSE

1. TYPE OF ACTION
   A. Addition □ Regular □ Experimental □ Other ___________________________ catalog (specify)
   B. Deletion □ □ in credits □ in title □ in number or alpha □ in prerequisites □ Other description (specify)
   C. Modification □ in credits □ in title PHYS 122 INTRO TO SCI: PHYSICAL □ in number or alpha □ in prerequisites □ Other PHYS 122 INTRO TO SCI: PHYSICAL □ in number or alpha □ in prerequisites □ Other

2. NEW ALPHA, NUMBER AND TITLE
   PHYS 122 INTRO TO SCI: PHYSICAL

3. CREDITS
   3 (LECTURE)

4. OLD ALPHA, NUMBER AND TITLE
   SCI 122 INTRO TO SCI: PHYSICAL

5. CREDITS
   1 (LAB)

6. NEW CATALOG DESCRIPTION: PHYS 122 INTRODUCTION TO SCIENCE: PHYSICAL (3). Characteristics of science, historical development of scientific concepts, and interactions with society illustrated by topics from physical sciences, with emphasis in physics and chemistry. Designed for non-science majors. WCC & UHM:NS2, UHWO:NS.

7. PREREQUISITES
   MATH 25 OR EQUIVALENT OR CONSENT OF INSTRUCTOR.
   COREQUISITE: PHYS 122L

8. STUDENT CONTACT HOURS PER WEEK
   Lecture 3 Lecture/Lab □ Lab □ Other (specify) □

9. PROPOSED DATE OF FIRST OFFERING
   FALL 1997

10. THIS COURSE □ IS REQUIRED □ IS AN ELECTIVE FOR THE WCC □ PROGRAM/CORE (Please specify) □ CAN FULFILL □ Natural Sciences □ REQUIREMENT (Please specify)

11. THIS COURSE □ INCREASES □ DECREASES □ MAKES NO CHANGE IN NUMBER OF CREDITS REQUIRED FOR THE PROGRAM/CORE

12. SIMILAR COURSES OFFERED ELSEWHERE:
   College(s):
   UHM

   Alpha, Number, Title:
   PHYS 122 INTRODUCTION TO SCIENCE: PHYSICAL

13. THIS COURSE IS
   □ ALREADY ARTICULATED □ APPROPRIATE FOR ARTICULATION □ NOT YET APPROPRIATE FOR ARTICULATION
   with □ UHM, UHWO □ UH, HILO (Provide details of existing or desired articulation (date, college(s), purposes, pre-major or major, etc.)

14. REASON FOR INITIATING, MODIFYING OR DELETING COURSE OR OTHER PERTINENT COMMENT:
   Re-name alpha and catalog description to be consistent with UH Manoa's course which recently underwent an alpha/catalog description change.

REQUESTED BY: [Signature]
Department Chairperson

APPROVED BY: [Signature]
Curriculum Committee Date

[Signature]
Faculty Senate Date

[Signature]
Dean of Instruction Date

[Signature]
Provost Date

CCCM #6100
(Amended for WCC use Sept. 1991)
<table>
<thead>
<tr>
<th>Signatures</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject Area (one or more instructors in the area)</td>
<td>11/12/96</td>
</tr>
<tr>
<td></td>
<td>11-12-96</td>
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<tr>
<td></td>
<td>11-12-96</td>
</tr>
</tbody>
</table>

2. Department

Department Chairperson

Was this course discussed in a dept. mung. 11-12-96

3. Division

Assistant Dean of Instruction

12-2-96

4. Curriculum Committee Review

Approved ✗

Disapproved

Reason:

1/16/97

Curriculum Committee Chairperson
COURSE ARTICULATION FORM

ORIGINATING CAMPUS: WCC

DATE SUBMITTED: 11-4-96

COURSE ALPHA & NUMBER: PHYS 122

SEMESTER CREDITS: 3

COURSE TITLE: INTRODUCTION TO SCIENCE: PHYSICAL

DATE OF OUTLINE: (Fall or Spring) FALL Year 1996

(** Representative outline, no multiple syllabi, please.)

1. Articulation committee to review this course:

   A. Standing Committees
      Written Communication [ ]
      Mathematical & Logical Thinking [ ]
      World Civilizations [ ]
      Languages [ ]
      Arts & Humanities [ ]
      Natural Science [X]
      Social Science [ ]

   B. Special Discipline/Program Committee [ ] Specify discipline/program

   Campus with which this course should be articulated (special articulation only):

   UH Manoa [X] UH Hilo [X] Community Colleges [X] UH West Oahu [X]

2. In the opinion of the originating campus, this course is equivalent to the following and/or meets the criteria for the indicated core categories:

<table>
<thead>
<tr>
<th>Receiving Campus</th>
<th>Equivalent Course (Alpha and Number)</th>
<th>Core Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>UH Hilo</td>
<td>PHYS 115</td>
<td></td>
</tr>
<tr>
<td>UH Manoa</td>
<td>PHYS 122</td>
<td></td>
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<tr>
<td>UH West Oahu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hawai'i CC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honolulu CC</td>
<td>SCI 122</td>
<td></td>
</tr>
<tr>
<td>Kapiolani CC</td>
<td>PHYS 122</td>
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</tr>
<tr>
<td>Kauai CC</td>
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<td></td>
</tr>
<tr>
<td>Leeward CC</td>
<td>SCI 122</td>
<td></td>
</tr>
<tr>
<td>Maui CC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windward CC</td>
<td>SCI 122</td>
<td></td>
</tr>
</tbody>
</table>

3. Notes

Revised 1/29/93
## ARTICULATED COURSE
### CHANGE IN ALPHA / NUMBER / TITLE

### OLD COURSE

<table>
<thead>
<tr>
<th>Course (alpha &amp; number):</th>
<th>SCI 122</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>INTRODUCTION TO SCIENCE: PHYSICAL SCIENCE</td>
</tr>
</tbody>
</table>

### REVISED COURSE

<table>
<thead>
<tr>
<th>Course (alpha &amp; number):</th>
<th>PHYS 122</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>INTRODUCTION TO SCIENCE: PHYSICAL</td>
</tr>
</tbody>
</table>

| Semester and Year when the revised course was/will be first offered: | FALL 1997 |

| Reason for the change in Alpha and/or Number: | TO MATCH THE ALPHA DESIGNATION RECENTLY APPROVED AT UH MANOA AFTER THE GENERAL SCIENCE DEPARTMENT CLOSED. |

Note: A current outline of the renumbered course must be submitted with this form. Undated outlines are not acceptable.

I certify that this course has had its alpha, number and/or title changed, but that it is substantially the same course as the course that was reviewed and approved for articulation.

Campus: **Windward C.C.**

Certifying authority: [Signature]

[Assistant Dean] 2-7-97

SUBMIT TO: UCA Clearinghouse, Attn: John Muth
Chancellor’s Office for CC, 2327 Dole Street.

12/14/94
WCC FORM FOR TRANSFER COURSES

(To be completed for articulation with any 4-year UH campus)

Course PHYS 122 Submitted by JOSEPH CIOTTI Date 11/6/96

1. List the counter part to this course on any 4-year UH campus. Describe the relationship between the course and any related baccalaureate program area.

   UH Manoa PHYS 122       UH Hilo PHYS 115

   This course is identical to the course taught at Manoa and is one of the course required in college of education.

2. Is this course taught or accepted by major accredited colleges or universities? Give one or two examples. YES

   HPU SCI 102       UH MANOA PHYS 122
   HCC SCI 122
   LCC SCI 122
   KCC PHYS 122
   UH HILo PHYS 115

3. Please attach a complete course outline, if you have not done so already. Your course outline should address all the items listed in the Guidelines for Course Outlines.

   SEE ATTACHED
WCC FORM FOR COURSE MODIFICATIONS

Course INTRO TO SCI: PHYSICAL Submitted by JOSEPH CIOTTI Date 11/4/96

1. What change is proposed in the course? Provide specific information comparing both the "new" and "old" course.
   - change alpha: SCI 122 (old) to PHYS 122 (new)
   - re-write catalog description to match Manoa's
   - separate lecture/lab credits to match Manoa's:
     SCI 122 4 credits (old) to PHYS 122 3 credits + PHYS 122L 1 credit (new)

2. What is the rationale for the change?
   Consistency with Manoa's designation to facilitate transfer of credits for this already articulated course.

3. Is the change substantive enough to require a change in course identification? If so, explain thoroughly.
   Absolutely not.

4. Is the course articulated with any 4-year program? Yes.
   If yes, give details of the agreement(s) and explain any impact the proposed modifications may have on articulation.
   - articulation is identified in all course catalogs
   - no impact on articulation

5. Provide details of any additional staff, equipment, facilities, library/media material, faculty preparation and other financial considerations that would be required to implement this course modification. What has been done to provide for these additional costs? Who will teach the course? Is additional preparation needed?
   None

6. Will this course modification result in any alterations in the number of hours required to attain a certificate or degree? No.
   If yes, provide details and justification for these alterations.

7. If the course is renumbered to 100 or above, does it meet the criteria for transfer level courses? (See attached criteria for transfer courses.)
   N/A

WCC 9/91
COURSE NAME: INTRODUCTION TO SCIENCE: PHYSICAL

COURSE NUMBER: PHYS 122

COURSE CREDITS: 3 credits

CATALOG DESCRIPTION: Characteristics of science, historical development of scientific concepts, and interactions with society illustrated by topics from the physical sciences, with emphasis in physics and chemistry. Designed for non-science majors.

PREREQUISITES: MATH 25 or equivalent or consent of instructor

COREQUISITES: PHYS 122L

ARTICULATION BY CAMPUS:
- WCC: Natural Sciences: Group 2—Physical Sciences (NS2)
- Manoa: Natural Sciences: Group 2—Physical Sciences (NS2)
- West Oahu: Natural Sciences (NS)

REQUIRED TEXT/MATERIAL:
- Physical Science (2th Edition)
  Jerry Faughn, Raymond Chang and Jon Turk

RECOMMENDED MATERIALS:
- Pocket calculator
- Physical Science: Study Guide with At-Home Experiments
  Joe Greever

ACTIVITIES REQUIRED AT TIMES OTHER THAN CLASS TIMES: None

INSTRUCTOR: Dr. JOSEPH CIOTTI

OFFICE: Iolani 106

OFFICE HOURS: Schedule posted on office door

OFFICE PHONE: 235-7319 (WCC Office)
  235-2631 (Aerospace Lab)

EFFECTIVE DATE: Fall 1996
A. Goals of the Course

The goals of the course are:

1. To provide the student with the fundamental knowledge, concepts and mysteries of the physical universe.
2. To provide the student with the general methods and techniques used by scientists to understand the universe.
3. To cultivate and enhance the student's ability to reason by applying the scientific method.
4. To promote greater student appreciation and awareness of the role of physics and chemistry in our society and world in general.

B. Objectives of the Course

Upon successful completion of this course, the student will be able to:

1. demonstrate a general understanding of the following topics:
   a.) the history and underlying philosophy of the physical sciences
   b.) basic physics concepts
   c.) basic chemistry concepts.
2. apply basic mathematics to problems in physics and chemistry.
3. define the common terms used in the physical sciences.
4. recognize when to apply physical sciences principles to everyday situations.

C. Expectations of Students

Success in this course will be enhanced by:

1. a positive, inquiring attitude toward science.
2. setting aside adequate time for studying and working problems.
3. reading the text carefully and making notes and use of handouts and other learning materials whenever necessary.
4. seeking assistance from the instructor.
5. class attendance and responsibly obtaining all assignments and/or changes to the course syllabus.
6. keeping abreast with or ahead of the syllabus.

D. Mode of Instruction

Lecture/Discussion: The initial portion of each lecture period is used to discuss and clarify any questions from the preceding class meeting. The remaining portion is used to present and discuss new materials.
E. Method of Evaluation

Evaluation of the successful completion of the objectives of this course will be determined by grades received on 4 QUIZZES (25 points each), a MID-TERM EXAM (60 points) and a FINAL EXAM (100 points). Up to 15 bonus points may be earned upon completion and presentation of a physical science demonstration (see Other Information for details).

All exams are to be taken within the classroom environment. (The Mid-Term exam as well as extra credit demonstration is administered in the lab period scheduled in the course calendar). All tests are closed-book. Students may use one sheet of notes for the Mid-Term and two sheets of notes for the Final Exam. The Final Exam includes all material covered throughout the entire course.

Test dates are listed on the course syllabus. The student is responsible for keeping abreast with any changes in syllabus which are announced in class. Unless permission is granted by the instructor, all tests must be completed and submitted to the instructor at the specified date and time.

Each letter grade with its respective level of achievement is as follows:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90% - 100% of cumulative points possible</td>
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<tr>
<td>B</td>
<td>80% - 89% of cumulative points possible</td>
</tr>
<tr>
<td>C</td>
<td>70% - 79% of cumulative points possible</td>
</tr>
<tr>
<td>D</td>
<td>60% - 69% of cumulative points possible</td>
</tr>
<tr>
<td>F</td>
<td>below 60% of cumulative points possible</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete: This temporary grade given at the instructor's option when a student has failed to complete a small part of a course because of circumstances beyond the student's control. All required work must be completed by the last day of instruction of the succeeding semester. The Cr/NC option must be declared by the end of the 10th week of classes. Written consent of instructor is required for this option.</td>
</tr>
<tr>
<td>Cr</td>
<td>Achievement of objectives at the C level or higher.</td>
</tr>
<tr>
<td>NC</td>
<td>Achievement of objectives at less than C level. (Formal grade)</td>
</tr>
<tr>
<td>N</td>
<td>Achievement of objectives at less than C level. (Optional instructor's grade)</td>
</tr>
<tr>
<td>W</td>
<td>Official withdrawal after the third week of a 16-week course and prior to the end of the 10th week. If a student officially withdraws by the end of the 3rd week of a 16-week course, the record of registration in this course will not appear on the student's transcript.</td>
</tr>
</tbody>
</table>
F. Other Information

1. If a student is unable to take an exam at the scheduled time, the student is responsible for notifying the instructor of the situation and reason(s). The student is responsible for requesting a make-up exam. An appropriate scoring penalty may be assigned to this make-up at the instructor's discretion. The student may be required to fulfill additional requirements as specified by the instructor in order to qualify for a make-up test. **Under no circumstances may more than one make-up test may be requested per student in this course.** Any test not taken will be assigned a score of zero.

2. Retests are not permitted.

3. **Extra Credit (Optional):** Up to 15 bonus points may be earned upon completion and presentation of a physical science demonstration. Up to 10 points are given for the oral presentation (5 points for the demonstration and 5 points for an explanation of the physical principal behind the demonstration) and up to 5 points for a two-page, doubled-spaced typed summary of the demonstration. See syllabus for date of this extra credit presentation. You should have a conference with the instructor during the planning stages of this extra credit project.

4. A student can determine how his/her current grade during any time of the semester by dividing his/her cumulative score by the cumulative points possible and converting into a percentage and referring to the table of Letter Grades.

5. Any student wishing to be informed of his/her semester grade in advance of the official mailing of report cards should provide the instructor a stamped, self-addressed postcard or envelope on the day of the Final Exam.
# PHYS 122 Fall 1996

*Introduction to Science: Physical*

<table>
<thead>
<tr>
<th>AUG</th>
<th>MONDAY</th>
<th>WEDNESDAY</th>
<th>FRIDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>Chp 1: Measurements 1.2-1.5</td>
<td>28</td>
<td>Scientific Method: 2.1; 4.1-4.2</td>
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<tr>
<td>SEP</td>
<td>2</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABOR DAY</td>
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<tr>
<td></td>
<td>9</td>
<td>11</td>
<td>13 QUIZ 1</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>18</td>
<td>20 3.7-3.9</td>
</tr>
<tr>
<td></td>
<td>Chp 3: Momentum &amp; Energy 3.1-3.3</td>
<td>23 3.10-3.11</td>
<td>27</td>
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<tr>
<td></td>
<td>23</td>
<td>25</td>
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<tr>
<td>OCT</td>
<td>30 QUIZ 2</td>
<td>2</td>
<td>Atomic/Kinetic Theory of Matter &amp; Density 2.15</td>
</tr>
<tr>
<td>7</td>
<td>5.4-5.7</td>
<td>9</td>
<td>5.8-5.10</td>
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<td>14</td>
<td>Chp 6: Thermodynamics 6.1-6.4</td>
<td>16 6.6-6.9</td>
<td>Sources of Energy</td>
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<tr>
<td></td>
<td>18 Chp 12: Inside the Atom 12.1-12.5</td>
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## PHYS 122  Fall 1996
Introduction to Science: Physical

### Schedule

<table>
<thead>
<tr>
<th>OCT</th>
<th>MONDAY</th>
<th>WEDNESDAY</th>
<th>FRIDAY</th>
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</thead>
<tbody>
<tr>
<td>21</td>
<td>Review for Mid-Term Lab: MID-TERM EXAM</td>
<td>23</td>
<td>25 Chp 15: Elements &amp; States of Matter 15.2; 15.6; 15.13</td>
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<tr>
<td>28</td>
<td>15.7-15.11</td>
<td>30 Chp 8: Electricity 8.1-8.3</td>
<td>1 8.6-8.9</td>
</tr>
<tr>
<td>11</td>
<td>VETERANS DAY</td>
<td>13 9.7-9.10</td>
<td>15 QUIZ 3</td>
</tr>
<tr>
<td>25</td>
<td>Half-Life 13.4</td>
<td>27 Chp 10: Properties of Light 10.2-10.3</td>
<td>29 THANKSGIVING BREAK</td>
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<tr>
<td>2</td>
<td>10.7-10.8</td>
<td>4 10.6 Human Eye (p. 228)</td>
<td>6 Chp 11: Nature of Light 11.1-11.3; 11.8</td>
</tr>
<tr>
<td>9</td>
<td>QUIZ 4 Extra Credit: Student Demos (in Lab)</td>
<td>11 Review for Final Exam</td>
<td>13 NO CLASSES</td>
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**WED, Dec 18: FINAL EXAM  8:30 - 10:20 am**