# NCCC

# PHYSICAL SCIENCES

# PROGRAM REVIEW
# FINAL REVIEW

## August 2001

# NEOSHO COUNTY COMMUNITY COLLEGE
# PROGRAM REVIEW PROCESS

## INSTRUCTION

During the Fall 2000 semester, the Instructional Program Review process used by Neosho County Community College was revised. The Strategic Planning Committee developed a new process after reviewing other program review models. The model was then presented to the Outcomes Assessment Committee for review and endorsement.

The purpose of the program review is four-fold: 1) to improve the quality of the institution's educational offerings by assessing strengths, weaknesses and developing recommendations for improvement, 2) to determine the continued need, demand, and effectiveness of current programs within the college and the service area, 3) to monitor student learning and results of program outcomes and 4) to identify areas of needed support to improve the program that can be incorporated into the overall institutional planning, budgeting, and decision-making processes.

This section will provide the guidelines for the new instructional program review process as well as a schedule for the reviews.

## Instructional Program Review Model

**Criterion 1: Program Mission**

1. What is the mission of the program?

### Neosho County Community College

### Physical Sciences (Physics & Chemistry)

**Mission Statement and Philosophy for the Physical science Courses:**

- Physics and Chemistry are the study of nature, from the tiniest elementary particle to the entire universe.
- For science and engineering students, the knowledge and skills learned in physics and chemistry courses in our department provide a solid foundation for further study in many fields, including all branches of engineering, health science, and applied science.
- The physical science courses we offer provide students with the general education courses normally taken in the first two years at a four years college or university and a flexible plan from which the student can choose a variety of introductory science courses as part of an interdisciplinary or associate degree in science programs.

- For non-science students, the concepts of physics and chemistry give new and exciting insights into our everyday world--topics include force, energy, light, sound, atoms, space and time and much more! And it fulfills the general education requirement for a science class and lab.
- the physical science department offer student centered curricula taught by highly qualified faculty in a wide variety of disciplines. The primary emphasis on our department are on:

1. **Teaching**: Our faculty pride themselves on giving personal attention to students in an atmosphere in which much attention is given to keeping class sizes small enough to allow for meaningful personal interaction with students, and maintain our students exposure to the most current theories and methodologies in a wide variety of specialties. All of the classes whether they are in campus or concurrent, taught by faculty or adjuncts, follow the same core competencies set by the full-time instructor, and taught by an instructor holds a masters degree, and at least 18 graduate hours in the teaching area.

2. **Encouraging and Developing the analytical thinking skills** ; this is achieved by targeting the following outcomes and competencies stated in most of our class syllabi:

I. Formulate problems using the tools of mathematics.

**Competencies:** The student will:

a. apply algebra, trigonometry, and calculus (for engineering students) in applications and problem solving.
b. demonstrate the ability to communicate ideas and facts using equations, graphs and other symbolic tools used in science.
c. Give the correct derived unit that results from a mathematical calculation involving measured numbers having units.

II Apply the scientific method in lab work settings.

**Competencies:** The student will:

a. conduct experiments, and collect data (observation).
b. analyze data collected.
c. draw a conclusion out of the lab performed.

III Analyze experimental error in lab work, and relates it to lab measurements.

**Competencies:** The student will:

a. calculate mean value, standard deviation, and percentage error for data collected.
b. measure the accuracy and precision of data collected.
c. state the source of error in his/her measurements.

3. **Utilizing technology in the class rooms and the labs** (which is consistent with the Neosho county community college mission statement).

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In the class room, all the lectures, diagrams, pictures and graphs in College and Engineering Physics I and II, General Chemistry I and II are presented via computer projection units that utilize power point software.
Many labs and experiments are demonstrated via the computer projection units using sensors interfaced to the computer using the lab Pro interface unit.

In the lab : To Apply technology in data collection, and analysis :
**Competencies:** The student will:

a. Learn how to use CBL2 and Lab Pro interface units, in lab work.
b. Use TI-83 PLUS graphing calculator, interfaced with CBL2 or Lab Pro interface units to collect data.
c. Use TI-83 PLUS graphing calculator to analyze and plot graphs for data collected.

a. How does its mission support the college mission?

**As stated in NCCC mission statement:**

- **An integral part of this mission is to utilize technologically advanced systems and a broad spectrum of knowledge in the delivery of instructional programs.**

- **Provide a quality higher education curriculum that will prepare students who transfer to other colleges and universities to succeed in furthering their education.**

b. Has the program made mission related interdisciplinary connections to other programs?

**As stated in the physical science mission statement :**

- **For science and engineering students, the knowledge and skills learned in physics and chemistry courses in our department provide a solid foundation for further study in many fields, including all branches of engineering, health science, and applied science.**
- **The physical science courses we offer provide students with the general education courses normally taken in the first two years at a four years college or university and a flexible plan from which the student can choose a variety of introductory science courses as part of an interdisciplinary or associate degree in science programs.**

- **For non-science students, the concepts of physics and chemistry give new and exciting insights into our everyday world--topics include force, energy, light,**

**sound, atoms, space and time and much more! <u>And it fulfills the general education requirement for a science class and lab</u>.**

2. What are the priority goals?

**As stated in the physical science mission statement :**

1. **Teaching**:
2. **Encouraging and Developing the analytical thinking skills**
3. **Utilizing technology in the class rooms and the labs**

3. What do you do?

4. **<u>Teaching</u>**: Our faculty pride themselves on giving personal attention to students in an atmosphere in which much attention is given to keeping class sizes small enough to allow for meaningful personal interaction with students, and maintain our students exposure to the most current theories and methodologies in a wide variety of specialties. All of the classes whether they are in campus or concurrent, taught by faculty or adjuncts, follow the same core competencies set by the full-time instructor, and taught by an instructor holds a masters degree, and at least 18 graduate hours in the teaching area.

5. **<u>Encouraging and Developing the analytical thinking skills</u>** ; this is achieved by targeting the following outcomes and competencies stated in most of our class syllabi:

I. Formulate problems using the tools of mathematics.

**Competencies:** The student will:

a. apply algebra, trigonometry, and calculus (for engineering students) in applications and problem solving.

d. demonstrate the ability to communicate ideas and facts using equations, graphs and other symbolic tools used in science.

e. Give the correct derived unit that results from a mathematical calculation involving measured numbers having units.

II Apply the scientific method in lab work settings.

**Competencies:** The student will:

d. conduct experiments, and collect data (observation).

e. analyze data collected.

f. draw a conclusion out of the lab performed.

III Analyze experimental error in lab work, and relates it to lab measurements.

**Competencies:** The student will:

d. calculate mean value, standard deviation, and percentage error for data collected.
e. measure the accuracy and precision of data collected.
f. state the source of error in his/her measurements.

6. **Utilizing technology in the class rooms and the labs** (which is consistent with the Neosho county community college mission statement).

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In the class room, all the lectures, diagrams, pictures and graphs in College and Engineering Physics I and II, General Chemistry I and II are presented via computer projection units that utilize power point software.
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f. Use TI-83 PLUS graphing calculator to analyze and plot graphs for data collected.

a. How well do you do it and who thinks so? Available student outcomes? Pre and post-tests?

**Pre-Post test results:**

| Year | Class | Pre-test % | Post-test % | % Difference |
|---|---|---|---|---|
| 1997/50 | General Physical Science | 55 | 117 | 62 |
| 1999/30 | General Chemistry | 4.57 | 38.57 | 34 |
| | General Physical Science | 43.2 | 83.2 | 40 |
| 1999/50 | Physical Science | 41.2 | 58.8 | 17.6 |
| | Intro College Physics I | 9 | 65 | 56 |
| | General Chemistry I | 14 | 69 | 55 |
| | Engineering Physics I | 10 | 64 | 54 |
| 2000/30 | General Chemistry II | 11 | 68 | 57 |
| | Engineering Physics II | 17 | 86 | 69 |
| | Physical Science | 44.3 | 58.3 | 14 |
| 2000/50 | General Chemistry I | 14.6 | 70.2 | 55.6 |
| | Intro College Physics I | 10.3 | 55.7 | 45.4 |
| | Engineering Physics I | 10.3 | 76.8 | 69.5 |

b. What difference does it make whether you do it or not?

**We try our best to provide students with the knowledge and skills to form a solid foundation for further study in many fields, including all branches of engineering, health science, and applied science.**
The physical science courses we offer provide students with the general education courses normally taken in the first two years at a four years college or university
In addition, to give new and exciting insights into our everyday world--topics include force, energy, light, sound, atoms, space and time and much more! And to fulfills the general education requirement for a science class and lab.

c. Does what you are doing correlate with why you are doing it?

**The focus on teaching , one-to-one relation with students, encouraging critical thinking, and use of technology in lab, and lecture parts correlate with what we stated earlier.**

d. What changes need to be made in the future?

**Improving the in-place plan, by providing additional facilities, equipment, maintenance and technology .**

**Criterion 2: Effectiveness of Program Relationships**

4. What other programs does your area support?

**All programs as stated in the physical statement mission statement:**

- **it fulfills the general education requirement for a science class and lab.**
- **a flexible plan from which the student can choose a variety of introductory science courses as part of an interdisciplinary or associate degree in science programs.**

5. Does any other program or area support this program?

**Supported by the Liberal Arts Division**

6. a. Are the present methods of operation/delivery appropriate for meeting the mission of the college and the program?

As stated in the physical statement mission statement:
**Utilizing technology in the class rooms and the labs** (which is consistent with the Neosho county community college mission statement).

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In the class room, all the lectures, diagrams, pictures and graphs in College and Engineering Physics I and II, General Chemistry I and II are presented via computer

projection units that utilize power point software.
Many labs and experiments are demonstrated via the computer projection units using sensors interfaced to the computer using the lab Pro interface units .

b. How have instructional technologies/methodologies been changed in the program or department during the last five years?

**The computer projection unit has been used starting Spring 1999-2000, and in regular basis starting Fall 2000-2001.**

**The physical science department in the summer of 1999, got approved for a matching grant from the National science foundation (NSF) with the amount of $ 3,440 (need to match it, in three years period) with the cooperation with P.S.U. We got $ 1969.48 of the grant money until this moment. Please *check appendix 1 for details and* an idea about the equipment (Lab Pro ), computer and graphing calculator based labs the fund was granted for. We already had purchased four complete packages, in addition to sensors for physics labs.**

c. What are the major areas of strength and how do they impact overall program reputation locally, regionally, nationally, internationally?

**Teaching**:

**Encouraging and Developing the analytical thinking skills**

**Utilizing technology in the class rooms and the labs**

The impact is the increase in the enrollment in the last two years.

**Criterion 3: Faculty Qualifications**

1. Identify the appropriate number of faculty, number of administrators, number of support personnel, etc. Identify the number of full-time and the number of part-time faculty.

Walid Shihabi, 2/3 time, Physics/Chemistry instructor
Homer Bearrick, part time, chemistry instructor.
Charles Bower, part time, physics instructor.

a. What is the length of tenure?

3-years

b. What are the non-teaching assignments of faculty?

**College committees, recruitment**

c. Compare teaching loads (e.g. last fall to current fall semester).

This fall : 25 credit hours total provided by the three instructors .
Last fall : 20 credit hours total provided by the three instructors .

d. What honors, awards, and recognitions have faculty received in the last five years?

**Excellence of teaching from Pittsburg State university to Walid shihabi in 1996.**

e. What have full-time and part-time faculty done to keep themselves current in their teaching field? (e.g. graduate course work, conferences, research projects, etc.)

- Two Work shops in Pittsburg state university over the computer based labs, in 1999.
- Presentation in the American Chemical Society sectional meeting in Ponca city, Oklahoma in August 1998.
- Two talks in Pittsburg state university about using technology in the lab.

f. What are future needs for personnel?

Possible in the case of a continuous increase in the enrollment.

**Criterion 4: Program Enrollment Analysis**

2. List the courses that are included in this program.

## CHEMISTRY

**CHEM 103 CHEMISTRY FOR EVERYDAY LIVING.....3**

**The course will introduce chemistry to the non-science individual. It will be presented to stimulate the individual curiosity in science and in the ordinary things in the world. Basic chemistry terminology will be presented along with an introduction to the Periodic Table and the division of metals and non-metals. Combinations of elements be discussed in forming familiar compounds that are used daily. Laboratory work will allow the student synthesize many of the products that are purchased, as well as determine the usefulness of others.**

**CHEM 105 INTRODUCTION TO CHEMISTRY .....3**

This course is designed for those students needing a beginning course in general chemistry, or for science majors, who have no high school chemistry. It is a study of the

basic principles, laws, and theories of chemistry, and will aid the student in developing an understanding of the role of chemistry in the world today. In addition, it will provide strong foundation for those continuing in chemistry.
Co-requisite: Concurrent enrollment with CHEM 106.

**CHEM 106 INTRODUCTION TO CHEMISTRY LAB.....2**
A series of laboratory activities to assist in learning the lecture of Chemistry.
Co-requisite: Concurrent enrollment with CHEM 105.

**CHEM 125 GENERAL CHEMISTRY 1.....3**
This course is designed for those students needing a strong chemistry background for more advanced courses in chemistry. Course work consists of lectures, discussion, and laboratory work on the fundamental principles In general inorganic chemistry. Topics covered include atomic structure, bonding, solutions, acid-base theory, gas laws, electrolytes, equilibrium, oxidation-reduction, and some descriptive chemistry. Problem solving is stressed in this course.
Co-requisite: Concurrent enrollment with CHEM 126.

**CHEM 126 GENERAL CHEMISTRY I LAB.....2**
A series of laboratory activities to assist in the learning of Inorganic Chemistry.
Co-requisite: Concurrent enrollment with CHEM 125.

**CHEM 135 GENERAL CHEMISTRY II.....3**
This course is a continuation of CHEM 125 with more advanced theoretical and mathematical concepts. Content includes ionic equilibria and solubility products, thermo-chemistry and an emphasis on descriptive chemistry.
Co-requisite: Concurrent enrollment with CHEM 136.

**CHEM 136 GENERAL CHEMISTRY II LAB.....2**
A series of laboratory activities to assist in learning the lecture of Inorganic Chemistry and Semi-micro Qualitative Analysis. The laboratory includes the separation of selected ions.
Co-requisite: Concurrent enrollment with CHEM 135.

**CHEM 165 ORGA NIC CHEMISTRY.....3**
This course is a study of the fundamental principles of organic chemistry with an introduction to biochemistry. The course stresses basic theory for both.
Recommended for biology majors, medical technology, certain home economic and agriculture majors. .
Prerequisite: Chemistry CHEM 125/126 or CHEM 105/106, and consent of the instructor.
Co-requisite: Concurrent enrollment with CHEM 166.

**CHEM 166 ORGANIC CHEMISTRY LAB.....2**
This course is a study of the fundamental principles of organic chemistry with an introduction to biochemistry. The course stresses basic theory for both aliphatic and

aromatic compounds. This includes nomenclature, bonding, reactions and some mechanisms. The laboratory involves techniques that apply to organic chemistry along with an introduction to infrared spectroscopy.
Recommended for biology majors, medical technology, certain home economics and agriculture majors and nursing majors.
Prerequisites: CHEM 125 or CHEM 105 with the consent of the instructor.
Co-requisite: Concurrent enrollment with CHEM 165.

**CHEM 203 ADVANCED INDUSTRIAL LABORATORY PROCEDURES: TOPICS SELECTED FROM: WET BENCH, INSTRUMENTAL, AND QUALITY CONTROL.....1**
A course for individuals already employed in an industrial chemistry position. Will provide an opportunity to improve laboratory skills for greater proficiency and/or assist in upgrading position and rating. Will involve specialized lab techniques, instrumentation, and operation of a quality control program, depending upon the student and job requirements.

**CHEM 224 CHEMISTRY FOR ELEMENTARY TEACHERS.....3**
This course will aid elementary teachers in developing simple, inexpensive "hands on" projects that will stimulate their students in continuing their education in chemistry and other science areas. Sufficient basic theoretical chemistry will be introduced to develop a better understanding of the laboratory projects that are presented. A variety of standard laboratory procedures and glassware will also be discussed so that teachers will be able to develop laboratory experiments to suit their needs.

**CHEM 245 QUANTITATIVE ANALYSIS.....3**
This course presents the fundamental principles of gravimetric and volumetric analysis of inorganic and some organic materials. Volumetric analysis includes acid-base, oxidation-reduction, chelometric, and precipitation techniques. An introduction to instrumental analysis in the areas of electro-chemistry, absorption spectroscopy, emission spectroscopy and an introduction to gas chromatography is studied.
Column and thin-layered chromatography as well as extraction methods are also covered.
Co-requisite: Concurrent enrollment with CHEM 246.

**CHEM 246 QUANTITATIVE ANALYSIS LAB.....2**
A series of laboratory activities to assist learning the lecture of Quantitative Analysis.
Co-requisite: Concurrent enrollment with CHEM 245.

## PHYSICS

**PHYS 100 INTRODUCTORY COLLEGE PHYSICS 1.....3**
The first semester physics course designed for the general science and liberal arts student. Coursework includes the study of forces, projectile motions, properties of matter and heat.
Co-requisite: Concurrent enrollment with PHYS 130.

**PHYS 101 INTRODUCTORY COLLEGE PHYSICS II.....3**
The continuation of Introductory College Physics I for general science and liberal art students. Coursework includes the study of wave motion (including sound and light), electricity and magnetism.
Co-requisite: Concurrent enrollment with PHYS 110.

**PHYS 102 FUNDAMENTALS OF ASTRONOMY.....3**
"This course will survey fundamental aspects of astronomy. It will encompass the history, physical attributes, and equipment related to the field of astronomy.

**PHYS 104 ENGINEERING PHYSICS I.....3**
The first semester of a calculus-based physics course for science and engineering majors. Coursework includes the study of mechanics, physical properties of matter, heat and thermodynamics.
Prerequisite: MATH 150, (or concurrent enrollment). High school physics recommended.

**PHYS 105 ENGINEERING PHYSICS II.....3**
The continuation of Engineering Physics PHYS 104, a calculus-based physics course for science and engineering majors. Coursework includes the study of electricity, magnetism, wave motion, and light.
Prerequisites: PHYS 104 and MATH 155 (or concurrent enrollment).

**PHYS 130 INTRODUCTORY COLLEGE PHYSICS I LAB.....2**
The laboratory exercises are designed to reinforce the fundamental concepts presented in the lecture portion of the course.
Co-requisite: Concurrent enrollment with PHYS 100.

**PHYS 135 INTRODUCTORY COLLEGE PHYSICS II LAB.....2**
Laboratory exercises which will enhance the understanding of PHYS 101. Coursework includes the study of wave motion (including sound and light), electricity, and magnetism. The laboratory is correlated with the lecture material to further the understanding of the concepts and problem solving skills of the student.
Co-requisite: Concurrent enrollment with PHYS 101.

**PHYS 140 ENGINEERING PHYSICS I LAB.....2**
Laboratory experiences to enhance the first semester of a calculus-based course for science and engineering majors. Course work includes the study of mechanics, physical properties of matter, heat, and thermodynamics.
Co- requisite: Concurrent enrollment with PHYS 104.

**PHYS 145 ENGINEERING PHYSICS II LAB.....2**
The continuation of Engineering Physics I PHYS 104 a calculus-based course for science and engineering majors. Course work includes the study of electricity, magnetism, wave motion, and light through the use of laboratory activities.
Co-requisite: Concurrent enrollment with PHYS 105.

**PHYS 160 INTRODUCTORY GEOLOGY.....3**
Introductory Geology is a course designed to acquaint students with the basic processes of the Earth. The course structure is divided into six topic areas: an overview of the Earth geology, plate tectonics; geologic time and life; the rock cycle; carving the landscape; and living with Earth.
Co-requisite: Concurrent enrollment with PHYS 165.

**PHYS 165 INTRODUCTORY GEOLOGY LAB.....2**
This is a laboratory course which will reinforce the information taught in the lecture portion of the course PHYS 160. The main areas to be covered include: minerals, rocks, topography maps, aerial photographs, structural features, and plate tectonics.
Co-requisite: Concurrent enrollment with PHYS 160.

**PHYS 171 PHYSICAL SCIENCE.....3**
A general education course exploring the areas of astronomy, physics, chemistry, geology, and meteorology. Concepts of the physical sciences are presented as related to the physical environment without the extensive use of mathematics. The student will participate in laboratory experiences to supplement the lecture portion of the class.
Co-requisite: Concurrent enrollment with PHYS 172.

**PHYS 172 PHYSICAL SCIENCE LAB.....2**
The laboratory exercises are designed to reinforce the fundamental concepts presented in the lecture portion of the course.
Co-requisite: Concurrent enrollment with PHYS 171.

**PHYS 270 CONCEPTUAL PHYSICS.....3**
A physics course designed to introduce the non-science individual to the basic concepts of physics. The course will teach the concepts in a qualitative way without a mathematical emphasis. Coursework includes the study of motion, sound, electricity, magnetism, light, and atomic physics.
Prerequisite: At least one year of high school algebra or trigonometry.

a. What are the enrollments in each of the courses? Do a five-year enrollment comparison so that enrollment trends in program courses as well as overall enrollment in the department or program can be studied.

*Check Appendix 2 please.*

b. What course or program developments or revisions have been made in the last five years?

**Adding outcomes and competencies to the syllabi .**

c. What are the grade distributions?

*Check Appendix 3 please.*

d. What new courses have been added since the spring of 1996 or the most recent program review?

Biology department added "Chemistry for health science" class.

e. What courses have been deleted since the spring of 1996 or the most recent program review?

None

3. What courses does your department or program offer through concurrent enrollment?

General Chemistry I, and General chemistry II

4. Provide student outcomes data comparing student performance in on-campus and concurrent courses.

*Out of Appendix 3:*

| Fall 2000 | | | A | | B | | C | | D | | F | | W | | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CD | General Chemistry I | 4 | | 3 | | 4 | | 1 | | 1 | | 1 | | 14 |
| | COC | General Chemistry I | 5 | | 3 | | 1 | | 1 | | | | | | 10 |
| | CD | General Chemistry I Lab | 4 | | 3 | | 4 | | 1 | | 1 | | 1 | | 14 |
| | COC | General Chemistry I Lab | 5 | | 3 | | 1 | | 1 | | | | | | 10 |

*Where:*

**CD Chanute Day**
**COC Chanute Outreach Concurrent**

**Criterion 5: Program Cost Analysis**

*Check Appendix 4 please.*

11. a. Indicate program/department expenditures for the past five years.

**From Appendix 4 :**

We can conclude the following:

| Categories | FY 95-96 | FY 96-97 | FY 97-98 | FY 98-99 | FY99-00 |
|---|---|---|---|---|---|
| Salary Expense | 29,735.00 | 30,528.00 | 7,276 | 14,234 | 22,114.63 |
| Operating Expenses (without capital outlay) | 189.00 | 59.51 | 1,109.45 | 559.45 | 8,067.19 |
| Capital Outlay | 0 | 0 | 0 | 0 | 0 |
| **Total (including Capital Outlay)** | 29,924 | 30,587.51 | 8,385.45 | 14,793.45 | 30,181.82 |

b. Indicate program/department budget for the past five years.

| Categories | FY 95-96 | FY 96-97 | FY 97-98 | FY 98-99 | FY99-00 |
|---|---|---|---|---|---|
| Salary Expense | 29,736 | 30,528 | 29,716 | 13,808 | 20,000 |
| Operating Expenses (without capital outlay) | 3,140 | 2,370 | 1,380 | 2,492 | 9,900 |
| Capital Outlay | 0 | 0 | 0 | 0 | 0 |
| **Total (including Capital Outlay)** | 32,876 | 32,898 | 31,096 | 16,300 | 29,900 |

*c.* Indicate the cost per student credit hour

*First we have to evaluate the head count times credit hours for each FY, so from Appendix 2 using the head count times credit hours for each FY we can derive the following:*

| | Sum 96 | Fall 96 | Spring 97 | Sum 97 | Fall 97 | Spring 98 |
|---|---|---|---|---|---|---|
| **Headcount x Cr-hrs** | 40 | 203 | 106 | 55 | 140 | 118 |
| total / FY | | | **FY 96 =349** | | | **FY 97 =313** |

| | Sum 98 | Fall 98 | Spring 99 |
|---|---|---|---|
| | 1998/10 | 1998/30 | 1998/50 |
| **Headcount x Cr-hrs** | 30 | 115 | 303 |
| **total / FY** | | | **FY 98 =448** |

| | Sum 99 | Fall 99 | Spring 00 |
|---|---|---|---|
| | 1999/10 | 1999/30 | 1999/50 |
| **Headcount x Cr-hrs** | 0 | 195 | 123 |
| **total / FY** | | | **FY 99 =318** |

| | Sum 00 | Fall 00 | Spring 01 |
|---|---|---|---|
| **Headcount x Cr-hrs** | 55 | 305 | 236 |
| **total / FY** | | | **FY 01 =596** |

Now, using the previous data and appendix 4 we can conclude the following:

| Categories | FY 96-97 | FY 97-98 | FY 98-99 | FY99-00 | FY00-01 |
|---|---|---|---|---|---|
| Student Credit Hours | 349 | 313 | 448 | 318 | 596 |
| Cost per student credit hour (excluding capital outlay) | 87.64 | 26.79 | 33.02 | 94.9 | 53.10 "estimate |
| Cost per student credit hour (including capital outlay) | 87.64 | 26.79 | 33.02 | 94.9 | 53.10 "estimate |

**Criterion 6: Outcomes Assessment**

1. How are the results of the outcomes assessment measures utilized by the department to affect necessary changes? (Provide documentation of outcomes results and changes that have been incorporated based on the results.)

My pre-post tests were set in a way to measure the outcomes, and competencies stated in the syllabi. So from the results and by measuring the improvement of each student in the post-test with respect to his/her score in the pre-test, for each competency. I will be able to determine how much each outcome was achieved, and to what percentage, with respect to the number of students. It also explore alternative methods of instruction, assessment methods, and text book choices. (page 5 of this review states the Pre-Post tests results for the last three years)

Here is example of Pre-Post tests for a single class after deleting the student names.

Pre- Post Test Scores for Introduction to Chemistry class, and lab
Spring 99, 6:30 pm – 9:30 pm

Instructor : Walid Shihabi

| Name | Pre Test | Post Test |
|---|---|---|
| | 27 | 70 |
| | 5 | 49 |
| | 15 | 73 |
| | 10 | 93 |
| | 23 | 90 |
| | Did not take it (late) | 62 |
| | 26 | 100 |

The results of the pre-post tests showed improvement in the knowledge the students obtained out of the course, although there is a variation between one student and another, mostly due to the attendance record of each one. The way to improve the learning process in such science class is by dedicating more time for problem solving, and using different demonstration tools to focus on the concepts taught, to draw the picture more clearly for the student to understand.

2. Have the applicable Kansas Core Indicators been satisfied for the program?

| |
|---|
| a. How does the department/program assess or support the general education outcomes? How are students in the department/program performing on the general education outcomes? |

**Chemistry Core Outcomes**

Faculty at the meetings ,**Dr. Kaye Walters, Kansas City, Kan., Facilitator** have established minimum core outcomes and in some cases competencies for selected general education classes chemistry I is one of those courses, the following is the list of the competencies agreed upon, and implemented by NCCC.

## Chemistry I

A: LECTURE

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

1. Explain the design and significance of experiments that led to the adoption of modern atomic theory.
2. Recognize and interpret isotopic notation; understanding the relationship between
   average atomic masses and isotopic masses.
3. Relate atomic mass to composition in terms of subatomic particles.
4. Relate spectroscopic observation of atoms to quantum mechanical theories.
5. Explain the distinction between classical and wave mechanics.
6. Describe the radial and angular dependence of solutions to the Schroedinger equation for hydrogenic atoms (s, p, d orbitals).
7. Using the Aufbau principle, write the electron configuration of many electron atoms.
8. Relate the names to formulas for simple ionic and molecular compounds.
9. Draw Lewis Dot Structures for atoms, simple ionic and molecular compounds.
10. Describe the characteristics of ionic and covalent bonding.

11. Be able to predict the shape of simple molecules and ions using VSEPR theory.
12. Explain how electronegativity differences relate to bond polarity.
13. Determine bond orders and relate them to relative bond strength.
14. Relate MO concepts to structural, energetic, spectroscopic, and magnetic properties
    of molecules.
15. Explain how the mole concept relates bulk chemical phenomena to atomic/molecular phenomena.
16. Perform calculation that employ relationships involving masses, formula units, and
    the mole concept.
17. Determine empirical and molecular formula from appropriate data.
18. Demonstrate your ability to balance chemical equations.
19. Write net ionic equations based on solubility rules.
20. Determine limiting reagents from stoichiometric data.
21. Calculate theoretical yield from stoichiometric data.
22. Employ stiochiometric reasoning in calculations of
    a. solution properties such as molarity
    b. reaction enthalpies
    c. properties of gases.
23. Describe, define, and use the following concepts based on principles of energetics:
    a. Heat capacity
    b. Calorimetry
    c. Heat/Work/Energy
    d. Enthalpy/Standard States
    e. Hess's Law
    f. Heat of Formation
    g. Phase Changes/Energy
24. Describe and apply the following concepts of the common state:
    a. General Properties of Gases
    b. Gas Laws
    c. Kinetic Molecular Theory
    d. General Properties of Liquids
    e. Intermolecular Forces
    f. General Solubility Rules
    g. General Properties of Solids
25. Describe the general properties of solids, liquids, and gases, using Kinetic Molecular Theory.
26. Calculate the concentration of a solution.
27. Describe and apply the general properties of:
    - Solutions
    - Solution Preparation
    - Solubility Principles/Rules
28. Determine oxidation states and assign oxidation numbers.
29. Balance Redox reactions and determine oxidation/reduction agent.

30. Describe and group elements according to the Periodic Trends.
31. Balance and classify the types of chemical reaction.

B: LABORATORY

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

1. Work in the laboratory in accordance with good laboratory practices.
   - Dress in an appropriate manner as to promote safety in the laboratory, wearing a lab coat and goggles when anyone is working with chemicals in the laboratory.
   - Follow written directions accurately.
   - Work safely and effectively, using equipment and chemical carefully and correctly.
   - Demonstrate use of required techniques.
   - Dispose of waste products in a proper manner.
2. Gather and record qualitative and quantitative data accurately.
   - Acquire data using balances and volumetric glassware.
   - Make and record visual observations.
   - Use computers, when appropriate, as data acquisition tools.
   - List or describe experimental assumptions made and any deviations from the written experimental procedures.
3. Handle and evaluate data in logical, productive, and meaningful ways.
   a. **Create notebooks and laboratory reports that are clear, understandable, and accurately represent the data collected.**
   b. Display computer data in a spreadsheet or graphically, as appropriate.
   c. Correlate observations with chemical or physical processes.
   - **Carry out suitable calculations with quantitative data, recognizing when data and calculations are within a reasonable range.**
   - **Use observations of experimental data to present relevant conclusions pertaining to the experimental procedure.**
4. Correlate laboratory work with principal topics in Chemistry I lecture.

In addition to the following objectives :

- Communicate effectively using scientific terms, and tools (graphs, equations)
- Demonstrate the principle of systematic inquiry.
- Develop self-discipline, respect for others, and the ability to work in a team ( in the lab work)
- Use technology effectively
- Understand the role and utilize the principles of research and data collection.

The Pre-Post test results, and students evaluations indicate an increase in the student satisfaction, performance, and critical skills.

b. What are the learning outcomes for the program. How are these outcomes assessed? (Provide supporting data, results, and subsequent action taken by the department to address results.)

7. **Encouraging and Developing the analytical thinking skills** ; this is achieved by targeting the following outcomes and competencies stated in most of our class syllabi:

I. Formulate problems using the tools of mathematics.

**Competencies:** The student will:

a. apply algebra, trigonometry, and calculus (for engineering students) in applications and problem solving.

f. demonstrate the ability to communicate ideas and facts using equations, graphs and other symbolic tools used in science.

g. Give the correct derived unit that results from a mathematical calculation involving measured numbers having units.

II Apply the scientific method in lab work settings.

**Competencies:** The student will:

g. conduct experiments, and collect data (observation).

h. analyze data collected.

i. draw a conclusion out of the lab performed.

III Analyze experimental error in lab work, and relates it to lab measurements.

**Competencies:** The student will:

g. calculate mean value, standard deviation, and percentage error for data collected.

h. measure the accuracy and precision of data collected.

i. state the source of error in his/her measurements.

8. **Utilizing technology in the class rooms and the labs** (which is consistent with the Neosho county community college mission statement).

.

In the class room, all the lectures, diagrams, pictures and graphs in College and Engineering Physics I and II, General Chemistry I and II are presented via computer projection units that utilize power point software.

Many labs and experiments are demonstrated via the computer projection units using sensors interfaced to the computer using the lab Pro interface unit.

In the lab : To Apply technology in data collection, and analysis :

**Competencies:** The student will:

g. Learn how to use CBL2 and Lab Pro interface units, in lab work.

h. Use TI-83 PLUS graphing calculator, interfaced with CBL2 or Lab Pro interface units to collect data.

i. Use TI-83 PLUS graphing calculator to analyze and plot graphs for data collected.

*Use of Pre-Post test results from the previous semesters allow us assess outcomes of the program.*

**Criterion 7: Program Facilities and Equipment Review**

3. ~~Are the facilities up-to-date?~~
   a. Are equipment, materials and facilities up-to-date? Are they properly maintained?

*Some of them are, many are not.*

b. What equipment, materials, and/or facilities do you anticipate requiring during the next five years? (Provide cost estimates and rationale.)

| Needed | Rationale | Costs ($) |
|---|---|---|
| **Need vitalization system in the chemistry store room** | To suck the chemicals fume away | 2,000 |
| **Disposal of old chemicals through professional disposal companies** | Old chemicals decompose, become Useless, and hazardous. | 3,000 |
| **Multimedia** | Computer demonstration, and power point lectures | 4,500 |
| **Demonstration hood with Motor/blower** | To conduct safe experiments while affording the entire class a clear view | 3,270 |
| **Portable Eye/face wash** | Lab safety | 340 |
| **Safety storage cabinets** | Store flammable chemicals | 1,180 |
| **Two hot plates / stirrers** | Heat and stir solutions needed in chemical experiments | 867 |
| **Complete precision table** | Physics labs | 1,500 |
| **Two air tracks** | Physics labs | 2,100 |
| **Physics computer sensors** | Physics labs | 500 |
| **Electrical instruments (signal generator, power supplies, DMM)** | Physics labs | 2,000 |
| **FT-IR** | Organic chemistry | 3,000 |

**Criterion 8: Program Graduate Review (Vocational and Technical Programs only)**

4. For vocational and technical programs only.
   a. List the number and percentage of graduates who pass tests required for licensure and/or certification.

b. List any graduate or employer follow-up survey results, advisory committee activity, etc.

**Criterion 9: Program or department strengths, weaknesses and plan of action. (For all programs)**

***Strengths*** **:**

- **Present use of technology**
- **One-to-one focus on students.**

***Weaknesses:***

- **Multi media units used are shared with other departments.**
- **Not enough equipment to have the students work in pairs instead of group of three or four sometimes.**
- **Delay of maintenance.**

***Plan of Action;***

- Purchase the required equipments
- Dispose old chemicals
- Install **vitalization system in the chemistry store room**
- Maintain the chemistry lab, and any broken instruments as soon as possible.

# APPENDIX 1

**The National Science Foundation Grant to the Physical Science Department related documents**

First and Only
Year 1999

# SUMMARY PROPOSAL BUDGET

| FOR NSF USE ONLY | | |
|---|---|---|
| PROPOSAL NO. | DURATION (MONTHS) Proposed | Granted |
| AWARD NO. | | |

ORGANIZATION
Neosho County Community College

PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR
Walid Shihabi

| A. SENIOR PERSONNEL: PI/PD, Co-PIs, Faculty and Other Senior Associates. List each separately with name and title. (A.7. Show number in brackets) | NSF-Funded Person-months CAL | ACAD | SUMR | Funds Requested By Proposer | Funds Granted by NSF (If Different) |
|---|---|---|---|---|---|
| 1. | | | | $ | $ |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |
| 6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET EXPLANATION PAGE) | | | | | |
| 7. ( ) TOTAL SENIOR PERSONNEL (1-6) | | | | | |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | |
| 1. ( ) POSTDOCTORAL ASSOCIATES | | | | | |
| 2. ( ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | | | | | |
| 3. ( ) GRADUATE STUDENTS | | | | | |
| 4. ( ) UNDERGRADUATE STUDENTS | | | | | |
| 5. ( ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | | |
| 6. ( ) OTHER | | | | | |
| TOTAL SALARIES AND WAGES (A + B) | | | | | |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.) | | | | | |
| TOTAL EQUIPMENT | | | | 3440 | |
| E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | |
| 2. FOREIGN | | | | | |
| F. PARTICIPANT SUPPORT 1. STIPENDS $ | | | | | |
| 2. TRAVEL | | | | | |
| 3. SUBSISTENCE | | | | | |
| 4. OTHER | | | | | |
| ( ) TOTAL PARTICIPANT COSTS | | | | | |
| G. OTHER DIRECT COSTS | | | | | |
| 1. MATERIALS AND SUPPLIES | | | | | |
| 2. PUBLICATION/DOCUMENTATION/DISSEMINATION | | | | | |
| 3. CONSULTANT SERVICES | | | | | |
| 4. COMPUTER SERVICES | | | | | |
| 5. SUBAWARDS | | | | | |
| 6. OTHER | | | | | |
| TOTAL OTHER DIRECT COSTS | | | | | |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | |
| I. INDIRECT COSTS (F&A) (SPECIFY RATE AND BASE) | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | |
| K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECT SEE GPG II.D.7.j.) | | | | | |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | $ 3440 | $ |

M. COST SHARING: PROPOSED LEVEL $3440 AGREED LEVEL IF DIFFERENT: $

| PI/PD TYPED NAME AND SIGNATURE | DATE | FOR NSF USE ONLY INDIRECT COST RATE VERIFICATION | | |
|---|---|---|---|---|
| Walid Shihabi | 11-13-98 | | | |
| ORG. REP. TYPED NAME & SIGNATURE* | DATE | Date Checked | Date of Rate Sheet | Initials-ORG |
| Allene D. Knedlik | | | | |

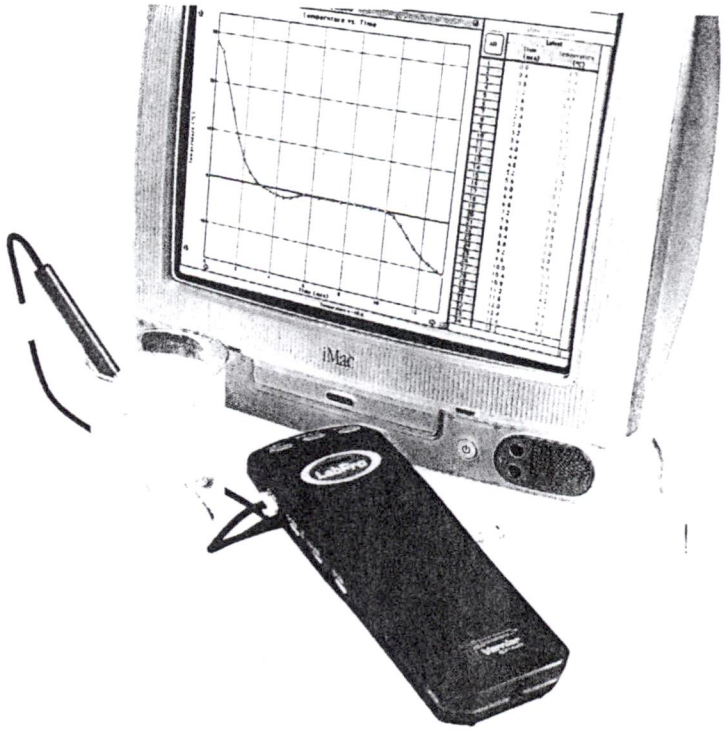
NSF Form 1030 (10/98) *Supersedes All Previous Editions*

*SIGNATURES REQUIRED ONLY FOR REVISED BUDGET (GPG III.C)

# Three ways to collect data using LabPro . . .

## Use LabPro with a Computer

1. Connect LabPro to your computer's USB or serial port.
2. Connect one of our auto-ID sensors.
3. Start the Logger *Pro* program.
4. Click on the Collect button of Logger *Pro* and start collecting data!



## Use LabPro with a Calculator

1. Slide a TI Graphing Calculator into the cradle and connect it to LabPro.
2. Push the Transfer button to send the DataMate program to the calculator.
3. Connect one of our auto-ID sensors.
4. Select Start to begin collecting data!

**Purchase one package per computer or calculator.**

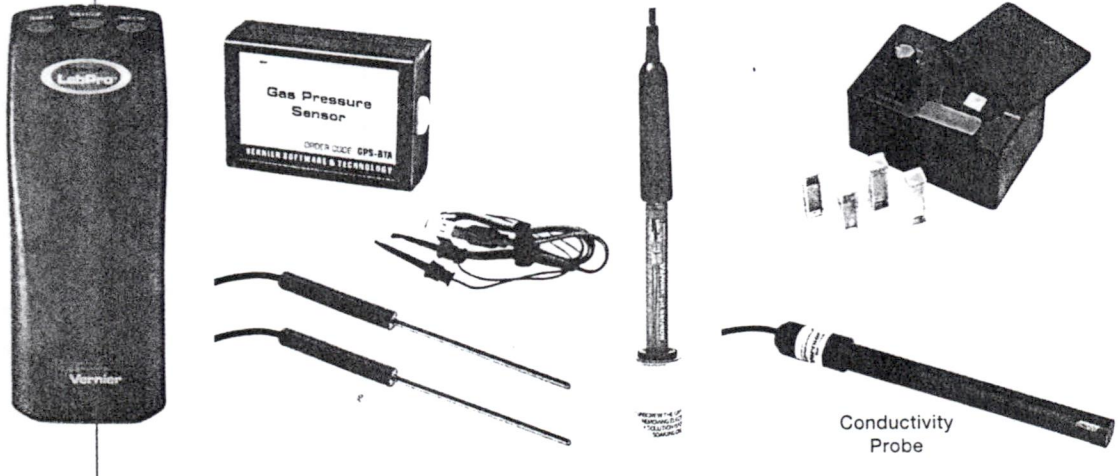
# LabPro Chemistry Packages

You also need to order one . . .

| Interface and Sensors | Order Code | Starter Package CH-STR | Deluxe Package CH-DX |
|---|---|---|---|
| LabPro Interface | LABPRO | $220 | $220 |
| (2) Stainless Steel Temperature Probes | TMP-BTA | 2@$29 = $58 | 2@$29 = $58 |
| pH Sensor | PH-BTA | $74 | $74 |
| Gas Pressure Sensor | GPS-BTA | $71 | $71 |
| Voltage Probe | *(Included with LabPro)* | $0 | $0 |
| Conductivity Probe | CON-BTA | | $89 |
| Colorimeter | COL-BTA | | $99 |
| | **Package Price** | **$423** | **$591** |

## Deluxe Chemistry Package

**The Deluxe Package contains all the sensors needed to do every experiment in our chemistry books!**




| Additional Chemistry Sensors and Accessories | | |
|---|---|---|
| Dissolved Oxygen Probe | DO-BTA | $191 |
| Thermocouple | TCA-BTA | $37 |
| $CO_2$ Gas Sensor | CO2-BTA | $261 |
| Instrumentation Amplifier | INA-BTA | $51 |
| Student Radiation Monitor | SRM-BTD | $145 |
| Radiation Monitor | RM-BTD | $205 |
| *Nuclear Radiation with Computers and Calculators* | NRCC | $25 |
| $O_2$ Gas Sensor | O2-BTA | $186 |
| $NO_3^-$, $Cl^-$, $Ca^{2+}$, $NH_4^+$ Ion Selective Electrodes | | $165 |

**Free site license! Purchase just one of each per school or college department!**

# Software and Lab Books

| | | Order Code | Price |
|---|---|---|---|
| **Software** | Logger *Pro* *(Windows and Macintosh)*<br>*Our award-winning software for computer data collection and analysis!* | LP | $65 |
| **Lab Books** | *Chemistry with Computers* **or**<br>*Chemistry with Calculators* | CWC-LP<br>CWCALC | $35 each |

***Chemistry with Computers* and *Chemistry with Calculators* contain the following experiments:**

**Using Temperature Probes**
- Endothermic and Exothermic Reactions
- Freezing and Melting of Water
- Heat of Fusion of Ice
- Fractional Distillation
- Evaporation and Intermolecular Attractions
- Vapor Pressure of Liquids
- Effect of Temperature on Solubility
- Using Freezing Point Depression to Find Molecular Weight
- Energy Content of Foods
- Energy Content of Fuels
- Hess's Law
- Heat of Combustion: Magnesium

**Using a Gas Pressure Sensor**
- Boyle's Law: Gas Pressure and Volume
- Pressure-Temperature Relationship
- Vapor Pressure of Liquids

**Using a pH Sensor**
- Household Acids and Bases
- Acid Rain
- Titration Curves of Strong and Weak Acids and Bases
- Acid-Base Titration
- Titration of a Diprotic Acid: Identifying an Unknown
- Acid Dissociation Constant, Ka
- Time-Released Vitamin C Tablet[1]
- The Buffer in Lemonade[1]
- Phosphoric Acid Content in Soft Drinks[1]
- Microscale Acid-Base Titration

**Using a Voltage Probe**
- Establishing a Table of Reduction Potentials: Micro-Voltaic Cells
- Lead Storage Batteries

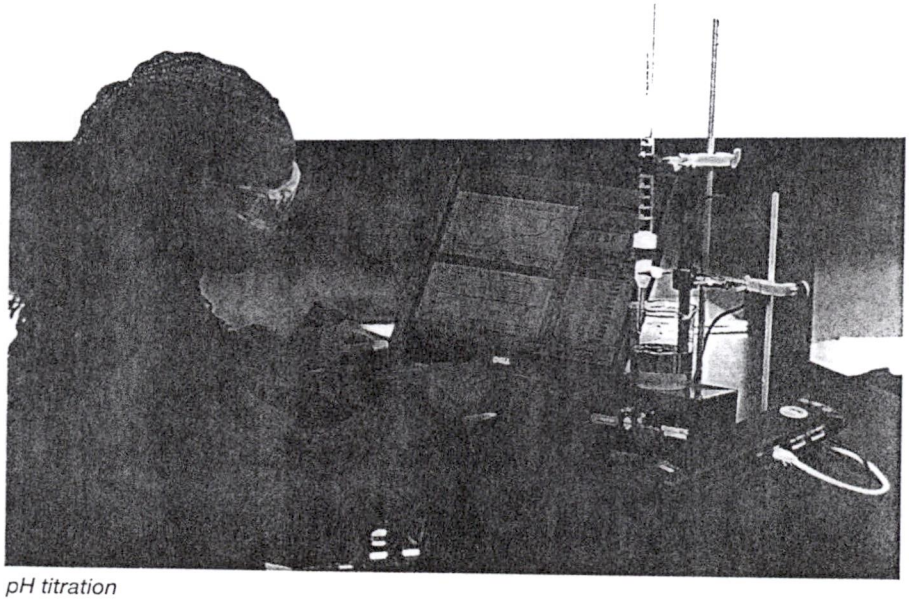
**Using a Conductivity Probe**
- Electrolytes and Non-Electrolytes
- Conductivity of Solutions: The Effect of Concentration
- Using Conductivity to Find an Equivalence Point

**Using a Colorimeter**
- Determining the Concentration of a Solution: Beer's Law
- Finding a Constant, Kc
- Rate Law Determination of the Crystal Violet Reaction
- Determining the Chlorine Content of Swimming Pool Water[1]
- Determining the Quantity of Iron in a Vitamin Tablet[1]

[1]In *Chemistry with Calculators* only

## Each Chemistry books includes


- 328 pages with 31 ready-to-use student experiments.
- Teacher section for each experiment with complete directions, helpful hints, and sample graphs and data.
- Word processing files of the student sections on CD, so labs may be edited to your specifications.



*pH titration*

**Calculator Users:**

If you are using LabPro with calculators to collect data, we strongly recommend:

TI-GRAPH LINK ..... see page 30
Graphical Analysis software ..... GA ..... $50
*(See page 50 for more information.)*

**Purchase one package per computer or calculator.**

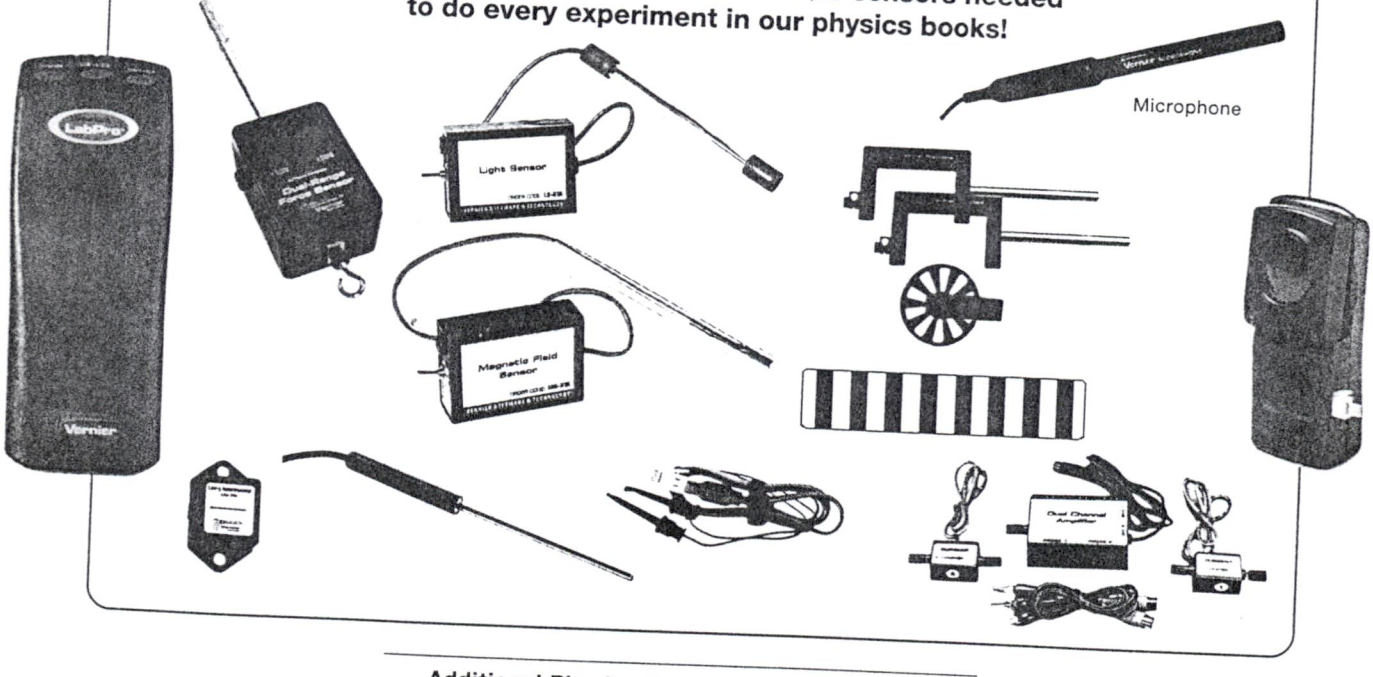
# LabPro Physics Packages

You also need to order one . . .

| Interface and Sensors | Order Code | Starter Package PH-STR | Deluxe Package PH-DX |
|---|---|---|---|
| LabPro Interface | LABPRO | $220 | $220 |
| Motion Detector | MD-BTD | $64 | $64 |
| Dual-Range Force Sensor | DFS-BTA | $99 | $99 |
| Microphone | MCA-BTA | $35 | $35 |
| Voltage Probe | *(Included with LabPro)* | $0 | $0 |
| Stainless Steel Temperature Probe | TMP-BTA | | $29 |
| Light Sensor | LS-BTA | | $45 |
| Low-g Accelerometer | LGA-BTA | | $90 |
| (2) Vernier Photogates | VPG-BTD | | 2@$41 = $82 |
| Super Pulley Attachment | SPA | | $19 |
| Magnetic Field Sensor | MG-BTA | | $54 |
| Current & Voltage Probe System | CV-BTA | | $89 |
| Picket Fence | PF | | $5 |
| | **Package Price** | **$418** | **$799** |

## Deluxe Physics Package

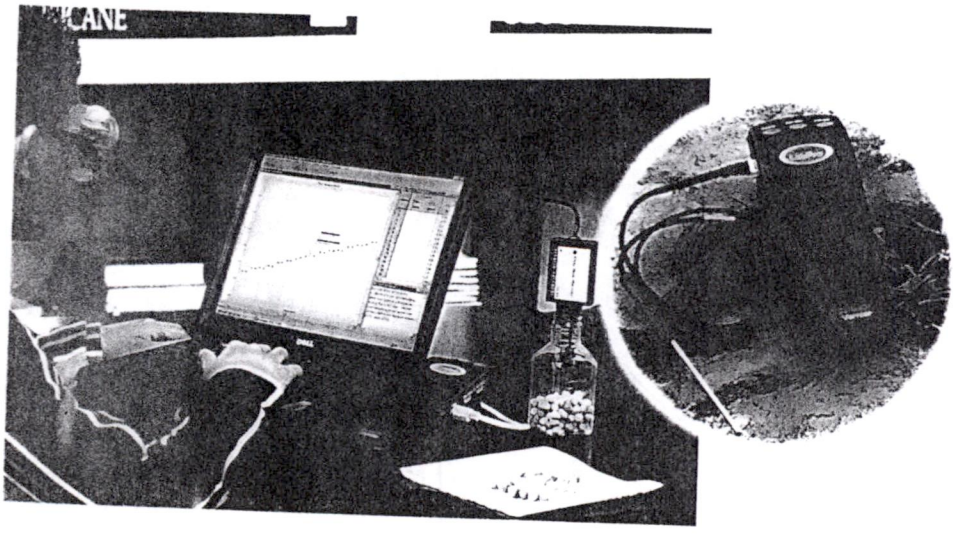
**The Deluxe Package contains all the sensors needed to do every experiment in our physics books!**




### Additional Physics Sensors and Accessories

| | | |
|---|---|---|
| 3-Axis Accelerometer | 3D-BTA | $199 |
| 25-g Accelerometer | ACC-BTA | $91 |
| Rotary Motion Sensor | RMS-BTD | $195 |
| Student Radiation Monitor | SRM-BTD | $145 |
| Radiation Monitor | RM-BTD | $205 |
| *Nuclear Radiation with Computers and Calculators* | NRCC | $25 |
| Digital Control Unit | DCU-BTD | $61 |

# Vernier LabPro™



**LabPro System includes:**

- LabPro Interface
- Voltage Probe
- Computer cables (USB & serial)
- Calculator cradle
- DataMate calculator program
- Calculator link cable
- User's manual
- AC power supply

Order Code LABPRO ..... $220

LabPro offers unparalleled flexibility, power, portability, and ease of use at an affordable price. Not only can you use LabPro as a computer interface, but you can also use it with a Texas Instruments Graphing Calculator. You have a choice of using LabPro with Windows or Macintosh computers, connected to a serial port or USB port. You can also take LabPro to your local stream or amusement park and take data—without a computer or calculator!

Even with all this power, LabPro is easy to use! Our new auto-ID sensors are automatically recognized and calibration is handled for you. If you use LabPro with a graphing calculator, the calculator programs you need are stored within LabPro.

| LabPro Specifications | |
|---|---|
| Channels for sensors | 4 analog and 2 digital |
| Compatible Vernier analog sensors | More than 35 sensors listed on page 23 ("-BTA" as part of order code) |
| Compatible Vernier digital sensors | Motion, photogate (2), radiation, rotary motion, Digital Control Unit |
| Analog output | Yes |
| Digital output | Yes |
| Maximum sample rate | 50,000 samples/second |
| Internal data storage | 12,000 points |
| Resolution | 12-bit |
| Computer connections | Serial or USB for Macintosh and PC |
| Compatible calculators | TI-73/82/83/83 Plus/86/89/92/92 Plus |
| Built-in calculator program | Yes (DataMate) |
| Stand-alone use | Yes |
| Sensor included free | Voltage Probe |
| Additional included items | computer cables (both serial & USB), AC power supply, calculator link cable, calculator cradle, and user's manual |
| Cost | $220 |

## Features

### Compatibility

- Windows or Power Macintosh computers, serial or USB port, with Logger *Pro* software (see page 23)
- TI Graphing Calculators (TI-73, TI-82, TI-83, TI-83 Plus, TI-86, TI-89, TI-92, TI-92 Plus)

### Six Data Collection Channels

- Four analog channels for over 35 different sensors, such as temperature, dissolved oxygen, gas pressure, pH, force, etc.
- Two digital channels for motion detectors, photogates, and radiation monitors

### Sensor Compatibility

- Compatible with our new auto-ID sensors.
- Can be used with our older sensors, with the appropriate adapter.

### Sampling

- Internally stores 12,000 data points
- Samples up to 50,000 readings per second
- 12-bit A/D conversion

### Built-In Calculator Program

- Press one button to transfer our data-collection program, DataMate, to a TI Graphing Calculator. Run the DataMate program to collect, graph, and analyze data in the classroom or in the field.

### Stand-Alone Operation

- LabPro can collect data in the field without a computer or calculator.

Winner for Most Innovative New Product
AAPT Winter 2000 Meeting!

# APPENDIX 2

**Five Years Enrollment Comparison, and Head Count times Credit Hours Calculations (Location and time of each class included)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Class | time& | Sum 96 | Fall 96 | Spring 97 | Sum 97 | Fall 97 | Spring 98 | Sum 98 | Fall 98 | Spring 99 | Sum 99 | Fall 99 |
| | place | 1996/10 | 1996/30 | 1996/50 | 1997/10 | 1997/30 | 1997/50 | 1998/10 | 1998/30 | 1998/50 | 1999/10 | 1999/30 |
| Intro to Chemistry | CD | | 7 | 6 | | | 9 | | 16 | | | |
| | CN | | 9 | 8 | | | | | | 8 | | 7 |
| | OD | | | | | | | | | | | |
| | ON | | 5 | | | 10 | 4 | | | 12 | | 9 |
| Intro to Chemistry Lab | CD | | 7 | 5 | | | 9 | | 16 | | | |
| | CN | | 9 | 8 | | | | | | 8 | | 7 |
| | OD | | | | | | | | | | | |
| | ON | | 5 | | | 9 | 3 | | | 11 | | 9 |
| General Chemistry I | CD | | 16 | 1 | | | 7 | | | | | 12 |
| General Chemistry I Lab | CD | | 15 | | | | 7 | | | | | 12 |
| General Chemistry II | CD | | | 7 | | | | | | | | |
| General Chemistry II Lab | CD | | | 7 | | | | | | | | |
| Physical Science | CD | | | | | 10 | | | | 23 | | |
| | CN | | | | | | | | 5 | | | 3 |
| Physical Science Lab | CD | | | | | 11 | | | | 23 | | |
| | CN | | | | | | | | 5 | | | 3 |
| Intro College Physics I | CN | | | | | 1 | | | 2 | 7 | | 4 |
| | OO | 8 | | | 11 | | | 6 | | | | |
| Intro College Physics I Lab | CN | | | | | 1 | | | 2 | 7 | | 4 |
| | OO | 8 | | | 11 | | | 6 | | | | |
| Engineering Physics I | CD | | 4 | | | | | | | | | 4 |
| | CN | | | | | 7 | | | | 2 | | |
| Engineering Physics I Lab | CD | | 4 | | | | | | | | | 4 |
| | CN | | | | | 7 | | | | 2 | | |
| Engineering Physics II | CD | | | 1 | | | | | | | | |
| | CN | | | | | | 4 | | | | | |
| Engineering Physics II Lab | CD | | | 1 | | | | | | | | |
| | CN | | | | | | 4 | | | | | |
| Fund of Astronomy | CN | | | | | | | | | 15 | | |
| Intro to Geology | CN | | | | | | | | | | | 5 |
| Intro to Geology Lab | CN | | | | | | | | | | | 5 |
| HeadcountxCr-hrs | | 40 | 203 | 106 | 55 | 140 | 118 | 30 | 115 | 303 | 0 | 195 |
| **total / FY** | | | | **349** | | | **313** | | | **448** | | |

| Class | Location | Spring 00 | Sum 00 | Fall 00 | Spring 01 |
|---|---|---|---|---|---|
| | | 1999/50 | 2000/10 | 2000/30 | 2000/50 |
| Intro to Chemistry | CD | | | | |
| | CN | 5 | | 6 | 9 |
| | OD | | | | |
| | ON | | | 10 | 8 |
| Intro to Chemistry Lab | CD | | | | |
| | CN | 5 | | 6 | 9 |
| | OD | | | | |
| | ON | | | 10 | 7 |
| General Chemistry I | CD | | | 14 | |
| | COC | | | 10 | |
| General Chemistry I Lab | CD | | | 14 | |
| | COC | | | 10 | |
| General Chemistry II | CD | 3 | | | 6 |
| General Chemistry II Lab | CD | 3 | | | 6 |
| Physical Science | CD | | | | |
| | CN | 12 | | 4 | 20 |
| Physical Science Lab | CD | | | | |
| | CN | 11 | | 4 | 19 |
| Intro College Physics I | CN | | | 11 | |
| | OO | | 11 | | |
| Intro College Physics I Lab | CN | | | 11 | |
| | OO | | 11 | | |
| Engineering Physics I | CD | | | 4 | |
| | CN | | | | |
| Engineering Physics I Lab | CD | | | 4 | |
| | CN | | | | |
| Engineering Physics II | CD | | | | 5 |
| | CN | 5 | | | |
| Engineering Physics II Lab | CD | | | | |
| | CN | 5 | | | 5 |
| Fund of Astronomy | CN | | | | |
| Intro to Geology | CN | | | | |
| Intro to Geology Lab | CN | | | | |
| Head counts x Cr-hrs | | 123 | 55 | 305 | 236 |
| **Total / FY** | | **318** | | | **596** |

| | | | |
|---|---|---|---|
| CD | Chanute | Day | |
| CN | Chanute | Night | |
| CO | Chanute | Outreach | |
| COC | Chanute | Outreach | Concurrent |
| OD | Ottawa | Day | |
| ON | Ottawa | Night | |
| OO | Ottawa | Outreach | |
| OOC | Ottawa | Outreach | Concurrent |

# APPENDIX 3

# Grade Distribution

| | LOC | CLASSES | A | AR | B | BR | C | C* | CR | D | D* | DR | F | F* | FR | W | I | P | NP | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1996/10** | OO | Intro Coll Physics I Lab | 4 | | 4 | | | | | | | | | | | | | | | 8 |
| **Su 96** | OO | Intro Coll Physics I | 1 | | 2 | 5 | | | | | | | | | | | | | | 8 |
| | | | **A** | **AR** | **B** | **BR** | **C** | **C*** | **CR** | **D** | **D*** | **DR** | **F** | **F*** | **FR** | **W** | **I** | **P** | **NP** | **TOTAL** |
| **1996/30** | CD | Intro to Chemistry | 1 | | 3 | | 1 | | | 1 | | | 1 | | | | | | | 7 |
| Fall | CN | Intro to Chemistry | 2 | | 4 | | 2 | | | | | | 1 | | | | | | | 9 |
| 1996 | ***ON*** | Intro to Chemistry | ***1*** | | ***2*** | | | | | | | | ***1*** | | | ***1*** | | | | ***5*** |
| | CD | Intro to Chemistry Lab | 6 | | | | | | | | | | 1 | | | | | | | 7 |
| | CD | Intro to Chemistry Lab | 7 | | 1 | | | | | | | | 1 | | | | | | | 9 |
| | ***ON*** | ***Intro to Chemistry Lab*** | ***1*** | | ***1*** | | ***1*** | | | | | | ***1*** | | | ***1*** | | | | ***5*** |
| | CD | General Chemistry I | | | 4 | 2 | 5 | | | 2 | 1 | | 2 | | | | | | | 16 |
| | CD | General Chemistry I Lab | 8 | 1 | 4 | | | | | 2 | | | | | | | | | | 15 |
| | CD | Engin Physics I Lab | 1 | | 1 | | | | | | | | 1 | | | 1 | | | | 4 |
| | CD | Enginering Physics I | 1 | | | | 1 | | | | | | 2 | | | | | | | 4 |
| | | | **A** | **AR** | **B** | **BR** | **C** | **C*** | **CR** | **D** | **D*** | **DR** | **F** | **F*** | **FR** | **W** | **I** | **P** | **NP** | **TOTAL** |
| **1996/50** | CD | Intro to Chemistry | 3 | | 1 | | | | | | | | 1 | | | 1 | | | | 6 |
| Spring | CN | Intro to Chemistry | 2 | | 3 | | 3 | | | | | | | | | | | | | 8 |
| 1997 | CD | Intro to Chemistry Lab | 4 | | | | 1 | | | | | | | | | | | | | 5 |
| | CN | Intro to Chemistry Lab | 8 | | | | | | | | | | | | | | | | | 8 |
| | CD | General Chemistry I | | | | | | | 1 | | | | | | | | | | | 1 |
| | CD | General Chemistry II | 1 | | 1 | | 2 | | 1 | | | | 1 | | | 1 | | | | 7 |
| | CD | Gen Chemistry II Lab | 4 | 1 | | | | | | | | | 1 | | | 1 | | | | 7 |
| | CD | Enginering Physics II | | | | | 1 | | | | | | | | | | | | | 1 |
| | CD | Engin Physics II Lab | 1 | | | | | | | | | | | | | | | | | 1 |
| | | | **A** | **AR** | **B** | **BR** | **C** | **C*** | **CR** | **D** | **D*** | **DR** | **F** | **F*** | **FR** | **W** | **I** | **P** | **NP** | **TOTAL** |
| **1997/10** | OO | Intro Coll Physics I Lab | 9 | | | | | | | | | | 1 | | | 1 | | | | 11 |
| **Su 97** | OO | Intro Coll Physics I | 1 | | 3 | | 5 | | | | | | 1 | | | 1 | | | | 11 |
| | | | **A** | **AR** | **B** | **BR** | **C** | **C*** | **CR** | **D** | **D*** | **DR** | **F** | **F*** | **FR** | **W** | **I** | **P** | **NP** | **TOTAL** |
| **1997/30** | ***ON*** | Intro to Chemistry | ***2*** | | ***3*** | | ***2*** | | | ***2*** | | | | | | ***1*** | | | | ***10*** |
| Fall | ***ON*** | Intro to Chemistry Lab | ***3*** | | ***3*** | | ***2*** | | | ***1*** | | | | | | | | | | ***9*** |
| 1997 | CD | Physical Science | 4 | | 5 | | | | | | | | 1 | | | | | | | 10 |
| | CD | Physical Science Lab | 2 | | 6 | | 2 | | | | | | 1 | | | | | | | 11 |
| | CN | Intro Coll Physics I Lab | 1 | | | | | | | | | | | | | | | | | 1 |
| | CN | Intro Coll Physics I | | | 1 | | | | | | | | | | | | | | | 1 |
| | CN | Engin Physics I Lab | 7 | | | | | | | | | | | | | | | | | 7 |
| | CN | Enginering Physics I | 6 | | 1 | | | | | | | | | | | | | | | 7 |
| | | | **A** | **AR** | **B** | **BR** | **C** | **C*** | **CR** | **D** | **D*** | **DR** | **F** | **F*** | **FR** | **W** | **I** | **P** | **NP** | **TOTAL** |

| | | | |
|---|---|---|---|
| **CD** | **Chanute** | **Day** | |
| **CN** | **Chanute** | **Night** | |
| **CO** | **Chanute** | **Outreach** | |
| **COC** | **Chanute** | **Outreach** | **Concurrent** |
| **OD** | **Ottawa** | **Day** | |
| **ON** | **Ottawa** | **Night** | |
| **OO** | **Ottawa** | **Outreach** | |
| **OOC** | **Ottawa** | **Outreach** | **Concurrent** |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1997/50** | CD | Intro to Chemistry | | | 5 | | 1 | | | 1 | | | 1 | | | 1 | | | | 9 |
| Spring | ***ON*** | Intro to Chemistry | ***1*** | | ***1*** | | ***1*** | | | | | | ***1*** | | | | | | | ***4*** |
| 1998 | CD | Intro to Chemistry Lab | 2 | | 4 | | 1 | | | | | | 1 | | | 1 | | | | 9 |
| | ***ON*** | Intro to Chemistry Lab | ***2*** | | ***1*** | | | | | | | | | | | | | | | ***3*** |
| | CD | General Chemistry I | 1 | | 1 | | 4 | | | 1 | | | | | | | | | | 7 |
| | CD | General Chemistry I Lab | 2 | | 4 | | 1 | | | | | | | | | | | | | 7 |
| | CN | Enginering Physics II | 3 | | | | | | | 1 | | | | | | | | | | 4 |
| | CN | Engin Physics II Lab | 3 | | | | | | | 1 | | | | | | | | | | 4 |
| | | | **A** | **AR** | **B** | **BR** | **C** | **C*** | **CR** | **D** | **D*** | **DR** | **F** | **F*** | **FR** | **W** | **I** | **P** | **NP** | **TOTAL** |
| **1998/10** | OO | Intro Coll Physics I Lab | 6 | | | | | | | | | | | | | | | | | 6 |
| **Su 98** | OO | Intro Coll Physics I | 2 | | 3 | | 1 | | | | | | | | | | | | | 6 |
| | | | **A** | **AR** | **B** | **BR** | **C** | **C*** | **CR** | **D** | **D*** | **DR** | **F** | **F*** | **FR** | **W** | **I** | **P** | **NP** | **TOTAL** |
| **1998/30** | CD | Intro to Chemistry | 6 | | 4 | | 2 | | | 2 | | | | | | 2 | | | | 16 |
| Fall | CD | Intro to Chemistry Lab | 10 | | 2 | | 2 | | | | | | | | | 2 | | | | 16 |
| 1998 | CN | Physical Science | 3 | | 2 | | | | | | | | | | | | | | | 5 |
| | CN | Physical Science Lab | 5 | | | | | | | | | | | | | | | | | 5 |
| | CN | Intro Coll Physics I Lab | | | | | 2 | | | | | | | | | | | | | 2 |
| | CN | Intro Coll Physics I | | | | | 2 | | | | | | | | | | | | | 2 |
| | | | **A** | **AR** | **B** | **BR** | **C** | **C*** | **CR** | **D** | **D*** | **DR** | **F** | **F*** | **FR** | **W** | **I** | **P** | **NP** | **TOTAL** |
| **1998/50** | CD | Intro to Chemistry | 3 | | 1 | | 2 | | | 1 | | | | | | 1 | | | | 8 |
| Spring | ***ON*** | Intro to Chemistry | ***6*** | | ***1*** | | ***2*** | | | ***1*** | | | | | | ***2*** | | | | ***12*** |
| 1999 | CN | Intro to Chemistry Lab | 3 | | 1 | | 3 | | | | | | | | | 1 | | | | 8 |
| | ***ON*** | Intro to Chemistry Lab | ***10*** | | | | | | | | | | | | | ***1*** | | | | ***11*** |
| | CN | Intro Coll Physics I | 1 | | 1 | | 3 | | | | | | 1 | | | 1 | | | | 7 |
| | CN | Enginering Physics I | | | | | 1 | | | 1 | | | | | | | | | | 2 |
| | CN | Intro Coll Physics I Lab | 1 | | 4 | | | | | | | | 1 | | | 1 | | | | 7 |
| | CN | Engin Physics I Lab | | | | | 1 | | | 1 | | | | | | | | | | 2 |
| | CD | Physical Science | 9 | | 11 | | 2 | | | | | | 1 | | | | | | | 23 |
| | CD | Physical Science Lab | 7 | | 14 | | | | | 1 | | | 1 | | | | | | | 23 |
| | | | **A** | **AR** | **B** | **BR** | **C** | **C*** | **CR** | **D** | **D*** | **DR** | **F** | **F*** | **FR** | **W** | **I** | **P** | **NP** | **TOTAL** |
| **1999/10** | | Su 1999 | | | | | | | | | | | | | | | | | | |
| | | | **A** | **AR** | **B** | **BR** | **C** | **C*** | **CR** | **D** | **D*** | **DR** | **F** | **F*** | **FR** | **W** | **I** | **P** | **NP** | **TOTAL** |
| **1999/30** | CN | Intro to Chemistry | 4 | | | | 1 | | | | | | | | | 2 | | | | 7 |
| Fall | ***ON*** | Intro to Chemistry | ***4*** | | ***4*** | | | | | ***1*** | | | | | | | | | | ***9*** |
| 1999 | CN | Intro to Chemistry Lab | 5 | | | | | | | 1 | | | | | | 1 | | | | 7 |
| | ***ON*** | Intro to Chemistry Lab | ***6*** | | ***1*** | | ***2*** | | | | | | | | | | | | | ***9*** |
| | CD | General Chemistry I | 6 | | | | 1 | | | 4 | | | | | | 1 | | | | 12 |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CD | General Chemistry I Lab | 6 | | 1 | | 1 | | | 3 | | | | | | 1 | | | | 12 |
| | CD | Intro Coll Physics I | 1 | | | | | | | | | | 2 | | | | | | | 3 |
| | CD | Enginering Physics I | 2 | | 2 | | | | | | | | | | | | | | | 4 |
| | CD | Intro Coll Physics I Lab | 1 | | | | | | | | | | 2 | | | | | | | 3 |
| | CD | Engin Physics I Lab | 2 | | 2 | | | | | | | | | | | | | | | 4 |
| | CN | Introductory to Geology | | | | | | | | | | | | | | | | 4 | 1 | 5 |
| | CN | Intro to Geology Lab | 3 | | 2 | | | | | | | | | | | | | | | 5 |
| | CN | Physical Science | 1 | | 1 | | 1 | | | | | | | | | | | | | 3 |
| | CN | Physical Science Lab | 1 | | 1 | | 1 | | | | | | | | | | | | | 3 |
| | | | **A** | **AR** | **B** | **BR** | **C** | **C*** | **CR** | **D** | **D*** | **DR** | **F** | **F*** | **FR** | **W** | **I** | **P** | **NP** | **TOTAL** |
| **1999/50** | CN | Intro to Chemistry | 4 | | | | | | | | | | | | | 1 | | | | 5 |
| Spring | CN | Intro to Chemistry Lab | 3 | | 1 | | | | | | | | | | | 1 | | | | 5 |
| 2000 | CD | General Chemistry II | 2 | | | | | | | 1 | | | | | | | | | | 3 |
| | CD | Gen Chemistry II Lab | 2 | | | | | | | 1 | | | | | | | | | | 3 |
| | CN | Enginering Physics II | 3 | | 2 | | | | | | | | | | | | | | | 5 |
| | CN | Engin Physics II Lab | 3 | | 2 | | | | | | | | | | | | | | | 5 |
| | CN | Physical Science | 5 | | 2 | | 3 | | | 2 | | | | | | | | | | 12 |
| | CN | Physical Scinece Lab | 6 | | 2 | | 1 | | | 1 | | | | | | 1 | | | | 11 |
| | | | **A** | **AR** | **B** | **BR** | **C** | **C*** | **CR** | **D** | **D*** | **DR** | **F** | **F*** | **FR** | **W** | **I** | **P** | **NP** | **TOTAL** |
| **2000/10** | OO | Intro Coll Physics I | 1 | | 3 | | 5 | | | 1 | | | | | | 1 | | | | 11 |
| Su 00 | OO | Intro Coll Physics I Lab | 8 | | 2 | | | | | | | | | | | 1 | | | | 11 |
| | | | **A** | **AR** | **B** | **BR** | **C** | **C*** | **CR** | **D** | **D*** | **DR** | **F** | **F*** | **FR** | **W** | **I** | **P** | **NP** | **TOTAL** |
| **2000/30** | CN | Intro to Chemistry | 4 | | 1 | | | | | | | | 1 | | | | | | | 6 |
| Fall | ***ON*** | Intro to Chemistry | ***4*** | | ***1*** | | ***2*** | | | ***2*** | | | ***1*** | | | | | | | ***10*** |
| 2000 | CN | Intro to Chemistry Lab | 5 | | | | | | | | | | 1 | | | | | | | 6 |
| | ***ON*** | Intro to Chemistry Lab | ***7*** | | | | ***2*** | | | | | | ***1*** | | | | | | | ***10*** |
| | CD | General Chemistry I | 4 | | 3 | | 4 | | | 1 | | | 1 | | | 1 | | | | 14 |
| | COC | General Chemistry I | 5 | | 3 | | 1 | | | 1 | | | | | | | | | | 10 |
| | CD | General Chemistry I Lab | 4 | | 3 | | 4 | | | 1 | | | 1 | | | 1 | | | | 14 |
| | COC | General Chemistry I Lab | 5 | | 3 | | 1 | | | 1 | | | | | | | | | | 10 |
| | CD | Intro Coll Physics I | | | 3 | | 2 | | | 1 | | | 1 | | | 4 | | | | 11 |
| | CD | Enginering Physics I | 3 | | | | 1 | | | | | | | | | | | | | 4 |
| | CD | Intro Coll Physics I Lab | | | 3 | | 2 | | | 1 | | | 1 | | | 4 | | | | 11 |
| | CD | Engin Physics I Lab | 3 | | | | 1 | | | | | | | | | | | | | 4 |
| | CN | Physical Science | 2 | | 1 | | 1 | | | | | | | | | | | | | 4 |
| | CN | Physical Science Lab | 4 | | | | | | | | | | | | | | | | | 4 |

# APPENDIX 4

## Department Expenditures , and Budget Information

# Physical Sciences Chanute Campus

| | Account | | Total Approp | Y-T-D Expendit Encumbrn | Unencub Balance |
|---|---|---|---|---|---|
| **1995/96** | 1 11 1123 520 | Faculty Salary | 25956 | 25955.98 | 0.02 |
| | 1 11 1123 595 | Fringe Benefits | 3780 | 3780 | 0 |
| | 1 11 1123 601 | Travel | 0 | 0 | 0 |
| | 1 11 1123 626 | Conference | 0 | 0 | 0 |
| | 1 11 1123 632 | Telephone | 60 | 3.49 | 56.51 |
| | 1 11 1123 648 | Equipment Repair | 0 | 0 | 0 |
| | 1 11 1123 700 | Instructional Supplies | 515 | 116.4 | 398.6 |
| | 1 11 1123 701 | Office Supplies | 100 | 12.75 | 87.25 |
| | 1 11 1123 710 | Small Equipment | 1145 | 55.54 | 1089.46 |
| | 1 11 1123 850 | Equipment | 1020 | 0 | 1020 |
| | 1 11 1123 851 | Software | 300 | 0 | 300 |
| | | | **32876** | **29924.16** | **2951.84** |
| **1996/97** | 1 11 1123 520 | Faculty Salary | 26748 | 26748 | 0 |
| | 1 11 1123 595 | Fringe Benefits | 3780 | 3780 | 0 |
| | 1 11 1123 601 | Travel | 0 | 0 | 0 |
| | 1 11 1123 626 | Conference | 0 | 0 | 0 |
| | 1 11 1123 632 | Telephone | 60 | 10.97 | 49.03 |
| | 1 11 1123 648 | Equipment Repair | 0 | 0 | 0 |
| | 1 11 1123 700 | Instructional Supplies | 386 | 48.54 | 337.46 |
| | 1 11 1123 701 | Office Supplies | 75 | 0 | 75 |
| | 1 11 1123 710 | Small Equipment | 859 | 0 | 859 |
| | 1 11 1123 850 | Equipment | 765 | 0 | 765 |
| | 1 11 1123 851 | Software | 225 | 0 | 225 |
| | | | **32898** | **30587.51** | **2310.49** |
| **1997/98** | 1 11 1123 520 | Faculty Salary | 27826 | 7276 | 20550 |
| | 1 11 1123 595 | Fringe Benefits | 1890 | 0 | 1890 |
| | 1 11 1123 601 | Travel | 0 | 0 | 0 |
| | 1 11 1123 626 | Conference | 0 | 0 | 0 |
| | 1 11 1123 632 | Telephone | 30 | 5.64 | 24.36 |
| | 1 11 1123 648 | Equipment Repair | 0 | 0 | 0 |
| | 1 11 1123 700 | Instructional Supplies | 300 | 287.7 | 12.3 |
| | 1 11 1123 701 | Office Supplies | 50 | 0 | 50 |
| | 1 11 1123 710 | Small Equipment | 300 | 308.55 | -8.55 |
| | 1 11 1123 850 | Equipment | 500 | 507.56 | -7.56 |
| | 1 11 1123 851 | Software | 200 | 0 | 200 |
| | | | **31096** | **8385.45** | **22710.55** |

## Physical Sciences Chanute Campus

| | Account | | Total Appropr | Y-T-D Expendit Encumbrn | Unencumt Balance |
|---|---|---|---|---|---|
| **1998/99** | 1 11 1123 520 | Falcuty Salary | 13808 | 14234.03 | -426.03 |
| | 1 11 1123 595 | Fringe Benefits | 0 | 0 | 0 |
| | 1 11 1123 601 | Travel | 1250 | 243.46 | 1006.54 |
| | 1 11 1123 602 | Team/Student Travel | 0 | 0 | 0 |
| | 1 11 1123 626 | Conference | 0 | 0 | 0 |
| | 1 11 1123 632 | Telephone | 27 | 47.72 | -20.72 |
| | 1 11 1123 648 | Equipment Repair | 0 | 13 | -13 |
| | 1 11 1123 700 | Instructional Supplies | 270 | 255.24 | 14.76 |
| | 1 11 1123 701 | Office Supplies | 45 | 0 | 45 |
| | 1 11 1123 710 | Small Equipment | 270 | 0 | 270 |
| | 1 11 1123 850 | Equipment | 450 | 0 | 450 |
| | 1 11 1123 851 | Software | 180 | 0 | 180 |
| | | | **16300** | **14793.45** | **1506.55** |
| **1999/2000** | 1 11 1123 520 | Faculty Salary | 20000 | 22114.63 | -2114.63 |
| | 1 11 1123 595 | Fringe Benefits | 0 | 0 | 0 |
| | 1 11 1123 601 | Travel | 1700 | 1452.8 | 247.2 |
| | 1 11 1123 602 | Team/Student Travel | 250 | 0 | 250 |
| | 1 11 1123 626 | Conference | 0 | 0 | 0 |
| | 1 11 1123 632 | Telephone | 50 | 11.88 | 38.12 |
| | 1 11 1123 648 | Equipment Repair | 500 | 99 | 401 |
| | 1 11 1123 700 | Insturctional Supplies | 1000 | 1176.73 | -176.73 |
| | 1 11 1123 701 | Office Supplies | 0 | 0 | 0 |
| | 1 11 1123 710 | Small Equipment | 2500 | 5326.78 | -2826.78 |
| | 1 11 1123 850 | Equipment | 3500 | 0 | 3500 |
| | 1 11 1123 851 | Software | 400 | 0 | 400 |
| | | | **29900** | **30181.82** | **-281.82** |

| Physical Sciences | Chanute Campus | |
|---|---|---|
| **Year** | **Expenditure** | |
| **Spring 1999** | **1775** | Year 1999<br>**1775** |
| **Spring 1998** | 7276<br>1150<br>**8426** | Year 1998<br>**8426** |
| **Fall 1997** | **1775** | Year 1997<br>**1775** |

**Physical Sciences** **Ottawa Campus**

Ottawa Overload and Outreach

| Year | Expenditure | |
|---|---|---|
| **Spring 2000** | **1140** | **Year 2000** |
| | | 1140 |
| **Sum 2000** | **1900** | 1900 |
| | | 1900 |
| **Fall 2000** | **1900** | **4940** |
| **Spring 1999** | 1065 | |
| | 1875 | |
| | **2940** | |
| | | **Year 1999** |
| | | 2940 |
| **Sum 1999** | **0** | 0 |
| | | 1800 |
| **Fall 1999** | **1800** | **4740** |

| Year | Expenditure | |
|---|---|---|
| **Spring 1998** | | |
| | 1150 | |
| | 1125 | |
| | 690 | |
| | 345 | |
| | **3310** | **Year 1998** |
| | | 3310 |
| **Sum 1998** | **1525** | 1525 |
| | | 0 |
| **Fall 1998** | **0** | **4835** |
| **Spring 1997** | **1065** | |
| **Sum 1997** | **1875** | **Year 1997** |
| | | 1065 |
| **Fall 1997** | 1775 | 1875 |
| | 1775 | 3550 |
| | **3550** | **6490** |

| Year | Expenditure | |
|---|---|---|
| Spring 1996 | 1835 | |
| | 1065 | |
| | **2900** | **Year 1996** |
| | | 2900 |
| **Sum 1996** | **1775** | 1775 |
| | | 1525 |
| **Fall 1996** | **1525** | **6200** |