12-7-2006

December 7, 2006

Council on Academic Affairs

Agenda for the December 7, 2006 CAA Meeting

Items approved: 06-116, Department Name Change Request – "Department of Physical Education" to "Department of Kinesiology and Sports Studies"
06-117, Psychology Major (Revised Major)
06-118, PHY 3001, Laser Safety (New Course)
06-119, PHY 3002, Introduction to Health Physics (New Course)
06-120, PHY 3100, Astronomical Techniques (New Course)
06-121, PHY 3320, Computational Methods in Physics and Engineering (New Course)
06-122, PHY 4100, Astrophysics (New Course)
06-123, PHY 4320, Computational Physics (New Course)
06-124, Physics Major (Revised Major)
06-125, Physics Minor (Revised Minor)
06-126, Physics, Option in Astronomy (New Option)
06-127, Physics, Option in Computational Physics (New Option)
06-128, Physics, Option in Engineering Physics (New Option)
06-129, Physics, Radiation Physics Option (Revised Option)

Items Pending: 06-78, Policy on Review of Capricious Grading, Forms, and Flowchart (New Policy to Replace IGP 45: Grades Appeals)
06-130, EDF 2595, Honors Diversity of Schools (New Course)
06-131, Biological Sciences (Revised Major)
06-132, Communication Disorders & Sciences (Revised Major)
06-133, ECN 3450, Game Theory (New Course)

Council on Academic Affairs
Minutes
December 7, 2006

The December 7, 2006 meeting of the Council on Academic Affairs was held at 2:04 p.m. in Booth Library Conference Room 4440.

Members present: Dr. Bower, Dr. Carwell, Dr. Dietz, Ms. Dilworth, Mr. Feimer, Ms. Green, Dr. Hyder, Mr. Melanson, Dr. Melvin, Dr. Roszkowski, Ms. Sommerfeld, and Dr. Stowell.

Members absent: Dr. Upadhyay.

Staff present: Dr. Lord and Ms. Fopay.

Guests present: Dr. Addison, Psychology; Dr. Brandt, Physics; Dr. Church, Physical Education; Dr. Conwell, Physics; Dr. Emmett, Physical Education; Dr. Haile Mariam, Faculty Senate and Psychology; Dr. Storm, Physics; and Dr. Zou, Physics.

I. Approval of the November 30, 2006 CAA Meeting Minutes
The minutes of November 30, 2006 were approved as written.

II. Communications:

a. College Curriculum Committee Meeting Minutes:
1. Minutes from the November 17, 2006 College of Sciences Curriculum Committee meeting.
2. Minutes from the December 1, 2006 College of Sciences Curriculum Committee meeting.

b. Executive Action Requests:
1. November 29, 2006 memorandum from Dean Hoadley, requesting executive action to add prerequisites to and revise the course description for INT 3343, effective Spring 2008.

c. Academic Waiver Reports:
1. Academic Waiver Reports for November 2006 from the Lumpkin College of Business & Applied Sciences, College of Arts & Humanities, College of Education & Professional Studies, and College of Sciences.
Per discussion at the meeting, Dr. Roszkowski will send a communication to the colleges. She will ask the colleges to consider adding a statement to future waiver

reports that would identify who approves waiver requests for courses outside of the their college.

On another note, Mr. Feimer indicated that some instructors are not aware of the following excerpt from Internal Governing Policy 44, Final Examinations, pertaining to students having three finals in one day.

> Examination Schedule Changes by Students
> A student who has three finals in one day may change the date of one of the final examinations with the approval of the instructor. Requests for changes for medical or personal emergencies may also be considered. In cases not resolved between the student and the instructor, the Department Chair will seek resolution.

III. Committee Reports:

None.

IV. Items to be Added to the Agenda:

1. 06-130, EDF 2595, Honors Diversity of Schools (New Course)
2. 06-131, Biological Sciences (Revised Major)
3. 06-132, Communication Disorders & Sciences (Revised Major)
4. 06-133, ECN 3450, Game Theory (New Course)

Dr. Dietz moved and Ms. Dilworth seconded the motion to add these items to the agenda.

V. Items Acted Upon:

1. 06-116, Department Name Change Request – "Department of Physical Education" to "Department of Kinesiology and Sports Studies"

Dr. Church and Dr. Emmett presented the proposal and answered questions of the council. Dr. Church explained that this proposal is a request to change the department name only. In the future, she will submit proposals to change the course prefix and degree names.

Ms. Dilworth moved and Dr. Dietz seconded the motion to approve the proposal.

The motion passed with the following vote.

Yes: Bower, Carwell, Dietz, Dilworth, Feimer, Hyder, Melvin, Roszkowski, Sommerfeld, and Stowell.
No: None.
Abstain: Melanson.

The proposal was approved, *effective Fall 2007* ***(See notation below. **)***, pending CGS approval.

> The **Department of Physical Education** will be RENAMED the **Department of Kinesiology and Sports Studies**. The course prefix and degree names will not change. The course prefix will remain PED. Also, the degree names will continue to appear in the Undergraduate Catalog as written: B.S. in Physical Education, B.S. in Physical Education: Athletic Training Option, Physical Education with Teacher Certification, B.S. in Physical Education: Teacher Certification Option K-12 Special Certificate, Physical Education Minor, and Physical Education Minor for Teacher Certification.
>
> **** NOTE: Unfortunately, due to Banner constraints, it is not possible to enter the new department name into Banner, effective Fall 2007. Therefore, the degree names and courses will be tied to the old department name "Physical Education" in Banner until at least Fall 2008.**

2. 06-117, Psychology Major (Revised Major)
Dr. Addison presented the proposal and answered questions of the council. The council requested minor revisions to the proposal.

Dr. Stowell moved and Mr. Melanson seconded the motion to approve the proposal.

The motion passed with the following vote.

Yes: Bower, Carwell, Dietz, Dilworth, Feimer, Hyder, Melanson Melvin, Roszkowski, and Sommerfeld.
No: None.
Abstain: Stowell.

The proposal, with minor revisions, **(See Attachment A)** was approved, *effective Fall 2007.*

3. 06-118, PHY 3001, Laser Safety (New Course)
Dr. Storm presented the proposal and answered questions of the council. The council requested a minor revision to the course description.

Dr. Carwell moved and Dr. Melvin seconded the motion to approve the proposal. The motion passed unanimously.

The proposal, with a minor revision, was approved, *effective Fall 2008.*

> **3001 PHY. Laser Safety (3-0-3) F-even-numbered years.** An introduction to laser safety in a professional setting. This course develops the fundamentals of laser operation. There is further study into safety issues involved in using lasers including hazards and protection. A working knowledge of the standards of laser safety and how to create a safer workplace is developed in this course. Students learn the practical matters as well as the legal issues facing a laser safety officer. Prerequisites: PHY 1161 or PHY 1371 and MAT 1441G or MAT 2110G.

4. 06-119, PHY 3002, Introduction to Health Physics (New Course)
Dr. Storm, Dr. Brandt, and Dr. Conwell presented the proposal and answered questions of the council. The council requested minor revisions to the course prerequisites.

Mr. Melanson moved and Mr. Feimer seconded the motion to approve the proposal. The motion passed unanimously.

The proposal was approved, *effective Spring 2008*.

> **3002 PHY. Introduction to Health Physics. (3-0-3) S.** Nuclear physics and radioactivity, radiological measurements, interactions of radiation with matter, radiation exposure and biological damage, safe radiological procedures and practices. Prerequisites: PHY 1372 (or PHY 1162 with permission of Chair); and MAT 1441G (or MAT 2110G).

5. 06-120, PHY 3100, Astronomical Techniques (New Course)
Dr. Conwell presented the proposal and answered questions of the council.

Ms. Dilworth moved and Dr. Stowell seconded the motion to approve the proposal. The motion passed unanimously.

The proposal was approved, *Spring 2009*.

> **3100 PHY. Astronomical Techniques. (2-3-3) S-odd-numbered years.** An introductory course in observational astronomy, with a two part emphasis. The first part covers the use and theory of modern telescopes, CCD cameras, filters, and spectrometers, while the second part covers the handling, calibration and reduction of data using astronomical image analysis software and other computer programs. Topics on the gathering of data outside the visible parts of the spectrum will also be addressed. Prerequisites: PHY 1055G, 1371, and 1372.

6. 06-121, PHY 3320, Computational Methods in Physics and Engineering (New Course)
Dr. Zou presented the proposal and answered questions of the council.

Dr. Carwell moved and Mr. Melanson seconded the motion to approve the proposal. The motion passed unanimously.

The proposal was approved, *effective Spring 2008.*

> **3320 PHY. Computational Methods in Physics and Engineering. (3-3-4) S-even-numbered years. Comp Methods in Phy and Engr.** An introduction to various numerical methods for solution of nonlinear equations, numerical differentiation, solution of ordinary differential equations for both initial-value and boundary-value problems. This course focuses on practical applications of these methods in simple physics and engineering systems and hands-on experience with computer modeling and simulation. Prerequisites: PHY 1371, MAT 2170, Concurrent or prior enrollment in MAT 2550.

7. 06-122, PHY 4100, Astrophysics (New Course)
Dr. Conwell presented the proposal and answered questions of the council.

Ms. Dilworth left at 3:00 p.m.

Mr. Feimer moved and Dr. Melvin seconded the motion to approve the proposal. The motion passed unanimously.

The proposal was approved, *effective Spring 2008.*

> **4100 PHY. Astrophysics. (3-0-3) S-even-numbered years.** An introductory course in astrophysics, with an emphasis on applying the tools of mechanics, electromagnetism, thermodynamics, and quantum theory to understand the processes inherent in galaxies, cosmology and the structure and evolution of stars. Prerequisites: PHY 3080.

8. 06-123, PHY 4320, Computational Physics (New Course)
Dr. Zou presented the proposal and answered questions of the council.

Dr. Hyder moved and Dr. Melanson seconded the motion to approve the proposal. The motion passed unanimously.

The proposal was approved, *effective Spring 2009.*

> **4320 PHY. Computational Physics. (3-3-4) S-odd-numbered years.** This is a project-oriented course in computational physics, with an emphasis on the understanding of the computational approach to complex physics problems through detailed case studies. Topics include realistic projectile motion, oscillatory motion and chaos, the solar system, potentials and fields, waves, random systems, molecular dynamics, and quantum mechanics. Prerequisites: PHY 2390, PHY 3080, PHY 3410, and PHY 3320.

9. 06-124, Physics Major (Revised Major)
Dr. Storm presented the proposal and answered questions of the council.

Dr. Hyder moved and Dr. Dietz seconded the motion to approve the proposal. The motion passed unanimously.

The proposal **(See Attachment B)** was approved, *effective Fall 2007.*

10. 06-125, Physics Minor (Revised Minor)
Dr. Storm presented the proposal and answered questions of the council. The council discussed the formatting of the catalog copy. Ms. Fopay indicated that she would look at ways of making the catalog copy easier to read without changing the context of the information.

Dr. Dietz moved and Mr. Melanson seconded the motion to approve the proposal. The motion passed unanimously.

The proposal **(See Attachment C)** was approved, *effective Fall 2007.* NOTE: As requested by the council, the catalog formatting was revised after the meeting with the assistance of Dr. Len Storm, Chair, Physics Department. Those changes appear in Attachment C.

11. 06-126, Physics, Option in Astronomy (New Option)
Dr. Conwell presented the proposal and answered questions of the council.

Dr. Carwell moved and Mr. Melanson seconded the motion to approve the proposal. The motion passed unanimously.

The proposal **(See Attachment D)** was approved, *effective Fall 2007.*

12. 06-127, Physics, Option in Computational Physics (New Option)
Dr. Zou and Dr. Conwell presented the proposal and answered questions of the council.

Dr. Carwell moved and Mr. Melanson seconded the motion to approve the proposal. The motion passed unanimously.

The proposal **(See Attachment E)** was approved, *effective Fall 2007.*

13. 06-128, Physics, Option in Engineering Physics (New Option)
Dr. Storm presented the proposal and answered questions of the council. The council requested a minor revision to the proposal.

Dr. Carwell moved and Dr. Hyder seconded the motion to approve the proposal. The motion passed unanimously.

The proposal, with a minor revision, **(See Attachment F)** was approved, *effective Fall 2007.*

14. 06-129, Physics, Radiation Physics Option (Revised Option)
Dr. Storm presented the proposal and answered questions of the council.

Ms. Sommerfeld moved and Mr. Melanson seconded the motion to approve the proposal. The motion passed unanimously.

The proposal **(See Attachment G)** was approved, *effective Fall 2007.*

VI. Pending:

1. 06-78, Policy on Review of Capricious Grading, Forms, and Flowchart (New Policy to Replace IGP 45: Grades Appeals)

The next meeting will be held Thursday, January 11, 2007.

The meeting adjourned at 3:26 p.m. *--Minutes prepared by Ms. Janet Fopay, Recording Secretary*

The current agenda and all CAA council minutes are available on the web at http://www.eiu.edu/~eiucaa/. In addition, an electronic course library is available at http://www.edu.edu/~eiucaa/elibrary/.

The CAA minutes, agendas, and summaries of CAA actions are distributed via a listserv, caa-list. To subscribe, go to the following web site: http://lists.eiu.edu/mailman/listinfo/caa-list. Locate the section "Subscribing to caa-list" and enter your email address and create a password. Next, click on the subscribe box. An email will be sent to you requesting confirmation. Once confirmation is received, your request will be held for approval by the list administrator. You will be notified of the administrator's decision by email.

********** ANNOUNCEMENT OF NEXT MEETING **********
Thursday, January 11, 2007
Conference Room 4440 – Booth Library @ 2:00 p.m.

Agenda:

1. 06-130, EDF 2595, Honors Diversity of Schools (New Course)
2. 06-131, Biological Sciences (Revised Major)
3. 06-132, Communication Disorders & Sciences (Revised Major)
4. 06-133, ECN 3450, Game Theory (New Course)

Pending:

1. 06-78, Policy on Review of Capricious Grading, Forms, and Flowchart (New Policy to Replace IGP 45: Grades Appeals)

Approved Executive Actions:

None.

Pending Executive Actions:

LCBAS
Effective Spring 2008

1. Revise the course description and add prerequisites to INT 3343.

   3343 INT. Digital Media Technologies. (1-4-3) ~~F.~~ On Demand. ~~Introduction to~~ **Advanced study of** digital media applications applied to print and web media. Major emphasis will be on page layout, image capture~~, image~~ **and** conversion, ~~image assembly,~~ **basic color theory,** web page development, differences in computer operating systems and file formats**.** ~~, differences in~~ **This course will include individual student and team projects applied to color** output devices, ~~basic color theory~~ and applications to print and web media ~~in individual student and group projects~~. **Prerequisite: INT 1363 or permission of instructor.**

Attachment A

Psychology

(BA)

Major

Criteria for admission to the Psychology Major:

Completion of MAT 1271 or higher level math course, with a grade of C or better; or ACT mathematics score of 26 or higher.

Completion of PSY 1879G (or equivalent) with a grade of C or better.

Core Requirements

Total Semester Hours: 36-39

Students must complete the hours specified from each of the groups below as well as the following, which represent the core requirements of the Psychology BA:

MAT 1271 - College Algebra. Credits: 3 or higher level math course, or ACT math score of 26 or higher
PSY 1879G - Introductory Psychology. Credits: 3
PSY 2610 - Statistical Methods of Psychology. Credits: 4
PSY 2999 - Psychological Forum. Credits: 1
PSY 3805 - Research Methods and Experimental Design. Credits: 4

Group A. Abnormal/Social Group:

At least two courses from:

PSY 3590 - Theories of Personality. Credits: 3
PSY 3780 - Abnormal Psychology. Credits: 3
PSY 3870 - Social Psychology. Credits: 3

Group B. Biopsychological Group:

At least one course from:

PSY 3310 - Biological Psychology. Credits: 3
PSY 3680 - Sensation and Perception. Credits: 3

Group C. Cognitive/Learning Group:

At least one course from:

PSY 3620 - Psychology of Learning. Credits: 3
PSY 3830 - Cognitive Processes. Credits: 3

Group D. Developmental Group:

At least one course from:

PSY 3515 - Child Psychology. Credits: 3
PSY 3521 - Psychology of Adolescence and Young Adulthood. Credits: 3
PSY 3525 - Psychology of Maturity and Old Age. Credits: 3

Electives

Electives: nine semester hours from any Psychology Courses [1,2] except Psychology 4274 and 4275.

Footnotes:

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[1] No more than 3 semester hours each of PSY 3900 or 4100 may count toward this requirement.

[2] At least 3 semester hours of this requirement must be at the 4000-level.

A grade of C or better is required in all courses counting towards the Major.

(Major GPA based on all psychology courses taken at EIU)

Majors are required to complete the department's exit evaluation at least 10 days prior to the closing date of the last term of graduation.

Attachment B

Physics

(BA)

Major

The Physics major comprises the following courses:

Students who have completed college-level, algebra-based physics courses (e.g., PHY 1151G, 1152G, 1161, 1162) should consult the department chair.

- CHM 1310G - General Chemistry I. Credits: 3
- CHM 1315G - General Chemistry Laboratory I. Credits: 1
- CHM 1410 - General Chemistry II. Credits: 3
- CHM 1415 - General Chemistry Laboratory II. Credits: 1
- MAT 1441G - Calculus and Analytic Geometry I. Credits: 5
- MAT 2442 - Calculus and Analytic Geometry II. Credits: 5
- MAT 2443 - Calculus and Analytic Geometry III. Credits: 4
- MAT 3501 - Differential Equations I. Credits: 3
- MAT 3502 - Differential Equations II. Credits: 3
- PHY 1351G - General Physics I. Credits: 3 (See footnote 1)
- PHY 1352G - General Physics I Laboratory. Credits: 1 (See footnote 1)
- PHY 1361 - General Physics II. Credits: 3
- PHY 1362 - General Physics II Laboratory. Credits: 1
- PHY 1371 - General Physics III. Credits: 3
- PHY 1372 - General Physics III Laboratory. Credits: 1
- PHY 2390 - Statics. Credits: 3
- PHY 2400 - Dynamics. Credits: 3
- PHY 3080 - Modern Physics I. Credits: 3
- PHY 3150 - Electronics. Credits: 4
- PHY 3410 - Electricity and Magnetism I. Credits: 3
- PHY 3420 - Electricity and Magnetism II. Credits: 3
- PHY 4000 - Seminar in Physics. Credits: 1
- PHY 4010 - Seminar in Physics. Credits: 1
- PHY 4710 - Experimental Physics. Credits: 1 (3 semester hours are required)
- PHY 4850 - Quantum Mechanics and Atomic Physics I. Credits: 4

Electives

And 6 semester hours of PHY electives, selected from the list below:

- PHY 3010 - Special Topics in Physics. Credits: 1 to 3
- PHY 3011 - Special Topics in Physics. Credits: 1 to 3
- PHY 3012 - Special Topics in Physics. Credits: 1 to 3
- PHY 3090 - Modern Physics II. Credits: 3
- PHY 3270 - Introduction to Circuit Analysis. Credits: 4
- PHY 3300 - Advanced Classical Mechanics. Credits: 3
- **PHY 3320 – Computational Methods in Physics and Engineering. Credits: 4**
- PHY 3350 - Introduction to Solid State Physics. Credits: 3
- **PHY 4100 – Astrophysics. Credits: 3**
- PHY 4410 - Independent Study. Credits: 1 to 3
- PHY 4470 - Optics. Credits: 4
- PHY 4750 - Thermodynamics and Statistical Mechanics. Credits: 4
- PHY 4800 - Independent Study. Credits: 1 to 6
- PHY 4860 - Quantum Mechanics and Atomic Physics II. Credits: 2
    - PHY 4870 - Mathematical Methods of Physics. Credits: 3

Footnote:

(Major GPA based on all physics courses taken at EIU.)

[1]PHY 1391, General Physics I, Honors, and PHY 1392, General Physics I Laboratory, Honors, may be taken in place of PHY 1351 and PHY 1352.

Attachment C

Physics Minor

Total Semester Hours: 18

4 Semester Hours from the following courses:

- PHY 1351G - General Physics I. Credits: 3
- PHY 1352G - General Physics I Laboratory. Credits: 1

OR

- PHY 1391G - General Physics I, Honors. Credits: 3
- PHY 1392G - General Physics I Laboratory, Honors. Credits: 1

OR

- PHY 1151G - Principles of Physics I. Credits: 3
- PHY 1152G - Principles of Physics I Laboratory. Credits: 1

4 Semester Hours from the following courses:

- PHY 1361 - General Physics II. Credits: 3
- PHY 1362 - General Physics II Laboratory. Credits: 1

OR

- PHY 1161 - Principles of Physics II. Credits: 3
- PHY 1162 - Principles of Physics II Laboratory. Credits: 1

4 Semester Hours from:

- PHY 1371 - General Physics III. Credits: 3
- PHY 1372 - General Physics III Laboratory. Credits: 1

Electives:

6 Semester Hours from:

- PHY 2390 - Statics. Credits: 3
- PHY 2400 - Dynamics. Credits: 3
- **PHY 3001 – Laser Safety. Credits: 3**
- **PHY 3002 – Health Physics. Credits: 3**
- PHY 3010 - Special Topics in Physics. Credits: 1 to 3
- PHY 3011 - Special Topics in Physics. Credits: 1 to 3
- PHY 3012 - Special Topics in Physics. Credits: 1 to 3
- PHY 3080 - Modern Physics I. Credits: 3
- PHY 3090 - Modern Physics II. Credits: 3
- **PHY 3100 – Astronomical Techniques. Credits: 3**
- **PHY 3320 – Computational Methods in Physics and Engineering. Credits: 4**
- PHY 3150 - Electronics. Credits: 4
- PHY 3300 - Advanced Classical Mechanics. Credits: 3
- PHY 3350 - Introduction to Solid State Physics. Credits: 3

- PHY 3410 - Electricity and Magnetism I. Credits: 3
- PHY 3420 - Electricity and Magnetism II. Credits: 3
- PHY 4100 – Astrophysics. Credits: 3
- PHY 4320 – Computational Physics. Credits: 4
- PHY 4470 - Optics. Credits: 4
- PHY 4710 - Experimental Physics. Credits: 1
- PHY 4750 - Thermodynamics and Statistical Mechanics. Credits: 4
- PHY 4850 - Quantum Mechanics and Atomic Physics I. Credits: 4
- PHY 4860 - Quantum Mechanics and Atomic Physics II. Credits: 2

Note:

Not more than two semester hours from:

- PHY 3010 - Special Topics in Physics. Credits: 1 to 3
- PHY 3011 - Special Topics in Physics. Credits: 1 to 3
- PHY 3012 - Special Topics in Physics. Credits: 1 to 3

Attachment D

New Option: B. S. in Physics, Option in Astronomy

Physics Major: Astronomy Option

The Astronomy option is a 4-year degree program for students interested in obtaining a B.S. degree in Physics with a concentration in astronomy. This option is for students desiring a liberal arts background in theoretical and experimental physics, as well as a background in astronomy.

Core Requirements

Requirements include:

- MAT 1441G - Calculus and Analytic Geometry I. Credits: 5
- MAT 2442 – Calculus and Analytic Geometry II. Credits: 5
- MAT 2443 - Calculus and Analytic Geometry III. Credits: 4
- PHY 1055G (or 1095G) – Principles of Astronomy, Credits: 3
- PHY 1056G (or 1096G) – Principles of Astronomy Laboratory, Credits: 1
- PHY 1351G (or 1391G) – General Physics I, Credits: 3
- PHY 1352G (or 1392G) – General Physics I Laboratory, Credits: 1
- PHY 1361 – General Physics II, Credits: 3
- PHY 1362 – General Physics II Laboratory, Credits: 1
- PHY 1371 – General Physics III, Credits: 3
- PHY 1372 – General Physics III, Credits: 1
- PHY 2600 – Introductory Research in Physics, Credits: 1
- PHY 3080 – Modern Physics I, Credits: 3
- PHY 3100 – Astronomical Techniques, Credits: 3.
- PHY 3150 – Electronics, Credits: 4
- PHY 4100 – Astrophysics, Credits: 3
- PHY 4470 – Optics, Credits: 4

Electives

3 semester hours chosen from the list below:

- MAT 2170 – Computer Science I, Credits: 4
- MAT 2550 – Introduction to Linear Algebra, Credits: 3
- MAT 3501 – Differential Equations I, Credits: 3

And 6 semester hours chosen from the following:

- PHY 3090 - Modern Physics II. Credits: 3
- PHY 3300 - Advanced Classical Mechanics, Credits: 3
- PHY 3320 – Computational Methods in Physics and Engineering, Credits: 4
- PHY 3410 - Electricity and Magnetism I, Credits: 3
- PHY 3420 - Electricity and Magnetism II, Credits: 3
- PHY 4444 –Honors Independent Study, Credits: 3 (See footnote 1)
- PHY 4555 –Honors Research, Credits: 3 (See footnote 1)
- PHY 4600 - Research in Physics, Credits: 1 to 3 (See footnote 1)
- PHY 4750 - Thermodynamics and Statistical Mechanics, Credits: 4
- PHY 4800 - Independent Study, Credits: 1 to 6 (See footnote 1)
- PHY 4850 - Quantum Mechanics and Atomic Physics I, Credits: 4
- PHY 4860 - Quantum Mechanics and Atomic Physics II, Credits: 2
- PHY 4870 – Mathematical Methods of Physics, Credits: 3

Footnote:

[1] A limit of 1 hour of Physics 4444, 4555, 4600, or 4800 may be counted toward the degree.
(Major GPA based on all physics courses taken at EIU.)

Attachment E

Proposed New Option: B. S. in Physics, Option in Computational Physics

Physics Major: Computational Physics Option

The Computational Physics option is designed for students interested in the computational approach to solving complex problems in physics. Students gain experience in computer modeling and simulation of a wide variety of systems in physics and engineering. It is designed for students who seek industrial employment or graduate study in a computational field.

Core Requirements

Requirements include:

- CHM 1310G – General Chemistry I, Credits: 3
- CHM 1315G – General Chemistry Laboratory I, Credits: 1
- MAT 1441G - Calculus and Analytic Geometry I, Credits: 5
- MAT 2170 - Computer Science I, Credits: 4
- MAT 2442 – Calculus and Analytic Geometry II, Credits: 5
- MAT 2443 - Calculus and Analytic Geometry III, Credits: 4
- MAT 2550 – Introduction to Linear Algebra, Credits: 3
- MAT 3501 – Differential Equations I, Credits: 3
- PHY 1351G (OR 1391G) – General Physics I, Credits: 3
- PHY 1352G (OR 1392G) – General Physics I Laboratory, Credits: 1
- PHY 1361 – General Physics II, Credits: 3
- PHY 1362 – General Physics II Laboratory, Credits: 1
- PHY 1371 – General Physics III, Credits: 3
- PHY 1372 – General Physics III Laboratory, Credits: 1
- PHY 2390 – Statics, Credits: 3
- PHY 2400 – Dynamics, Credits: 3
- PHY 3080 – Modern Physics I, Credits: 3
- PHY 3320 – Computational Methods in Physics and Engineering, Credits: 4
- PHY 3410 – Electricity and Magnetism I, Credits: 3
- PHY 4000 – Seminar in Physics, Credits: 1
- PHY 4010 – Seminar in Physics, Credits: 1
- PHY 4320 – Computational Physics, Credits: 4
- PHY 4600 – Research in Physics, Credits: 2
- PHY 4710 – Experimental Physics, Credits: 1
- PHY 4850 – Quantum Mechanics and Atomic Physics I, Credits: 4

Electives

And 6-8 hours of electives chosen from the list below:

- PHY 3090 – Modern Physics II, Credits: 3
- PHY 3270 – Introduction to Circuit Analysis, Credits: 4
- PHY 3300 – Advanced Classical Mechanics, Credits: 3
- PHY 3350 – Introduction to Solid State Physics, Credits: 3
- PHY 3420 – Electricity and Magnetism II, Credits: 3
- PHY 4100 – Astrophysics, Credits: 3
- PHY 4470 – Optics, Credits: 4
- PHY 4750 – Thermodynamics and Statistical Mechanics, Credits: 4
- PHY 4800 – Independent Study, Credits: 1-3 (See footnote 1)
- PHY 4860 – Quantum Mechanics and Atomic Physics II, Credits: 2
- PHY 4870 – Mathematical Methods of Physics, Credits: 3

Footnote:

[1]A limit of 3 semester hours of PHY 4800 may be counted toward the option.
(Major GPA based on all physics courses taken at EIU.)

Attachment F

New Option: B. S. in Physics, Option in Engineering Physics

Engineering Physics

(BS)
(See also "Pre-Engineering Program" and "Engineering")

This cooperative degree program requires about three years of work at EIU followed by two years of work at the University of Illinois at Urbana-Champaign (UIUC). This program is designed to combine studies in Physics and Engineering, producing workers with greater versatility and broader skills, making them more attractive to employers of scientists and engineers. Upon completion of the program, the student receives a Bachelor of Science in Physics: Option in Engineering Physics, from EIU and a Bachelor of Science in Engineering degree from UIUC. Interested students should consult with the chairperson of the Pre-Engineering Studies Committee for detailed requirements of the program.

After completing 60 semester hours in this curriculum, a student may apply to the EIU Pre-Engineering Studies Committee for admission as an Engineering Physics candidate. The requirements for admission as an Engineering Physics candidate are a minimum grade point average of 3.00 and approval by the committee. Continuation as an engineering candidate includes meeting the transfer requirements of the College of Engineering at UIUC.
A student who transfers into this curriculum from another college or university must be in residence at EIU for at least one semester before he/she becomes eligible for admission as an Engineering Physics candidate**.**

Core Requirements

Total: 87-94 semester hours with elective credit to bring the total to 90 semester hours.

- General Education Electives. Credits: 30 (See footnote 1)
- CHM 1310G - General Chemistry I. Credits: 3
- CHM 1315G - General Chemistry Laboratory I. Credits: 1
- CHM 1410 - General Chemistry II. Credits: 3 (See footnote 2)
- CHM 1415 - General Chemistry Laboratory II. Credits: 1 (See footnote 2)
- INT 2043 - Computer-Aided Engineering Drawing. Credits: 3 (See footnote 2)
- MAT 1441G - Calculus and Analytic Geometry I. Credits: 5
- MAT 2170 - Computer Science I. Credits: 4
- MAT 2442 - Calculus and Analytic Geometry II. Credits: 5
- MAT 2443 - Calculus and Analytic Geometry III. Credits: 4
- MAT 3501 - Differential Equations I. Credits: 3
- PHY 1000 - Engineering Orientation. Credits: Audit only (See footnote 3)
- PHY 1351G - General Physics I. Credits: 3
- PHY 1352G - General Physics I Laboratory. Credits: 1
- PHY 1361 - General Physics II. Credits: 3
- PHY 1362 - General Physics II Laboratory. Credits: 1
- PHY 1371 - General Physics III. Credits: 3
- PHY 1372 - General Physics III Laboratory. Credits: 1
- PHY 2390 - Statics. Credits: 3
- PHY 2400 - Dynamics. Credits: 3
- PHY 4710 – Experimental Physics (taken twice). Credits: 2

12 Semester Hours From Category A+B+C:

Category A: At least one of:

- PHY 3410 – E&M I. Credits 3
- PHY 4850 – Quantum Mechanics & Atomic Physics I. Credits 4 (See footnote 4)

Category B: At least one of:

- PHY 3350 – Solid State. Credits 3 (See footnote 5)
- PHY 4470 – Optics. Credits 4
- PHY 4750 – Thermodynamics & Statistical Mechanics. Credits 4

Category C:

- PHY 3080 – Modern Physics I. Credits: 3
- PHY 3090 - Modern Physics II. Credits: 3
- PHY 3150 - Electronics. Credits: 4
- PHY 3270 – Intro. Circuit Analysis. Credits 4
- PHY 3300 – Advanced Classical Mechanics. Credits 3
- PHY 3350 – Solid State. Credits 3
- PHY 3410 – E&M I. Credits 3
- PHY 3420 – E&M II. Credits 3
- PHY 4444 – Honors Independent Study. Credits 3 (See footnote 6)
- PHY 4470 – Optics. Credits 4
- PHY 4555 – Honors Research. Credits 3 (See footnote 6)
- PHY 3410 – E&M I. Credits 3
- PHY 4600 – Research. Credits 1-3 (See footnote 6)
- PHY 4644 – Honors Thesis. Credits 3 (See footnote 6)
- PHY 4750 – Thermodynamics & Statistical Mechanics. Credits 4
- PHY 4800 – Independent Study. Credits 1-3 (See footnote 6)
- PHY 4850 – Quantum Mechanics & Atomic Physics I. Credits 4
- PHY 4860 – Quantum Mechanics & Atomic Physics II. Credits 2
- PHY 4870 – Mathematical Methods. Credits 3

Footnotes:

(Major GPA based on all EIU courses in chemistry, industrial technology, mathematics, and physics taken from the list above.)

Students completing cooperative degree programs, i.e., Engineering and Clinical Laboratory Sciences, will not be required to take a senior seminar or to submit the fourth sample to the Electronic Writing Portfolio because the terminal year is taken off-campus in cooperative programs.

[1] These courses should be selected in consultation with the chairperson of the Pre-Engineering Studies Committee to ensure that Eastern's General Education requirements and UIUC requirements are both fulfilled.

[2] Students are encouraged to take all of these courses, but one or more may not be required in certain engineering fields.

[3] This course should be repeated each semester that a student attends Eastern. In the case of course conflicts with this course, a waiver should be obtained from the Chair of the Pre-Engineering Studies Committee.

[4] This course has a pre-requisite of Physics 3080.

[5] This course has a pre-requisite of Physics 3410.

[6] A limit of 3 hours of Physics 4444, 4555, 4600, 4644, or 4800 may be counted toward the degree.

Attachment G

Proposed Change to B. S. in Physics: Radiation Physics Option

Physics Major: Radiation Physics Option

The radiation physics option is for students interested in applications of physics that occur in the nuclear radiation fields including radio-pharmaceuticals, dosimetry and environmental radiation safety.

Core Requirements

Requirements include:

- CHM 1310G - General Chemistry I. Credits: 3
- CHM 1315G - General Chemistry Laboratory I. Credits: 1
- CHM 1410 - General Chemistry II. Credits: 3
- CHM 1415 - General Chemistry Laboratory II. Credits: 1
- CHM 2730 - Quantitative Analysis. Credits: 3
- ESC 3010G - Environmental Physical Sciences. Credits: 3 (cross listed with GEL 3010G)
- GEL 4335 - Environmental Geology. Credits: 3
- MAT 1441G - Calculus and Analytic Geometry I. Credits: 5 or
- MAT 2110G - Brief Calculus with Applications. Credits: 3
- MAT 2170 - Computer Science I. Credits: 4
- PHY 1151G - Principles of Physics I. Credits: 3
- PHY 1152G - Principles of Physics I Laboratory. Credits: 1
- PHY 1161 - Principles of Physics II. Credits: 3
- PHY 1162 - Principles of Physics II Laboratory. Credits: 1
- **PHY 3001 – Laser Safety. Credits 3**
- **PHY 3002 – Health Physics. Credits 3**
- ~~PHY 3011 - Special Topics in Physics. Credits: 1 to 3 (2 semester hours of Radiation Safety required)~~
- ~~PHY 3012 - Special Topics in Physics. Credits: 1 to 3 (2 semester hours of Laser Safety required)~~
- PHY 3150 - Electronics. Credits: 4
- PHY 4000 - Seminar in Physics. Credits: 1
- PHY 4710 - Experimental Physics. Credits: 1 (3 semester hours are required - 2 in radiation lab and 1 in laser lab)

Electives

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5 semester hours of electives chosen from the list below:

- BIO 3100 - Molecular and Cell Biology. Credits: 3
- CHM 2430 - Survey of Organic Chemistry. Credits: 3
- CHM 2435 - Survey of Organic Chemistry Laboratory. Credits: 1
- CHM 3450 - Biochemistry I. Credits: 3
- FCS 4820 - Death and Dying. Credits: 3
- MAT 2250G - Elementary Statistics. Credits: 4
- PHY 3080 - Modern Physics I. Credits: 3
- PHY 4010 - Seminar in Physics. Credits: 1
- PHY 4600 - Research in Physics. Credits: 1 to 3
- PHY 4800 - Independent Study. Credits: 1 to 6

Footnote:

(Major GPA based on all physics courses taken at EIU.)