PHYSICS (PHYS)

PHYS 5351 - Bioelectromagnetism (4 Credits)
The fundamental theory of electric and magnetic fields is developed
and applied to problems in biology and medicine. Examples in medical
diagnostics and treatment are built upon rigorous application of
Maxwell’s equations and constitutive models of electromagnetic
properties of biomaterials. Restriction: Restricted to Graduate and
Graduate Non-Degree Majors. Cross-listed with PHYS 4351. Term offered:
ininfrequent. Max Hours: 4 Credits.
Grading Basis: Letter Grade
Restriction: Restricted to Graduate and Graduate Non-Degree Majors

PHYS 5352 - Bioelectromagnetism NM (4 Credits)
This course is the non-majors’ companion to PHYS 4351/5351 (taught
simultaneously) using modeling approaches accessible to the general
science student. Restriction: Restricted to Graduate and Graduate Non-
Degree Majors. Cross-listed with PHYS 4352. Term offered: infrequent.
Max Hours: 4 Credits.
Grading Basis: Letter Grade
Restriction: Restricted to Graduate and Graduate Non-Degree Majors

PHYS 5400 - Scientific Instrumentation (3 Credits)
Conceptual and practical knowledge needed to design scientific
instruments, develop technical products, and use special laboratory
procedures to research. Topics include materials, mechanisms,
electronics, and optics. Cross-listed with PHY 4400. Repeatable.
Infrequently Offered. Max hours: 6 Credits.
Grading Basis: Letter Grade

PHYS 5401 - Special Topics (1-3 Credits)
Repeatable. Max Hours: 3 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 3.

PHYS 5840 - Independent Study: PHYS (1-3 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Term offered: spring, summer, fall infrequently. Max
Hours: 3 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 3.
Typically Offered: Fall, Spring, Summer.

PHYS 5850 - Physics for Design and Innovation I (3 Credits)
A service-learning project using fundamental physical principles
to design a prototype scientific instrument, technical device, or
technical process for a real-world client. Includes instruction on project
management, intellectual property, and market analysis. Cross-listed with
PHYS 4850. Repeatable. Term offered: infrequent. Max Hours: 6 Credits.
Grading Basis: Letter Grade

PHYS 5852 - Physics for Design and Innovation II (3 Credits)
A capstone project using fundamental physical principles to prototype
a scientific instrument, technical device or technical process. The focus
is on the student’s own product idea. Includes online guided readings
on the wider context of product development. Students should consult
with instructor on necessary physics and mathematics preparation for
the project. Prereq: PHYS 4850 or 5850. Cross-listed with PHYS 5852.
Repeatable. Term offered: infrequent. Max Hours: 6 Credits.
Grading Basis: Letter Grade

PHYS 5880 - Directed Research (1-6 Credits)
Students will engage in original research projects supervised and
mentored by faculty. Students must work with faculty prior to registration
to develop a proposal for their project and receive permission to take this
course. Repeatable. Max Hours: 6 Credits.
Grading Basis: Letter Grade

PHYS 5939 - Internship (1-6 Credits)
Note: Students must submit a special processing form completely filled
out and signed by the student and faculty member, describing the course
expectations, assignments and outcomes, to the Graduate School for
approval. Note: Students must check with a faculty member before taking
this course. Repeatable. Term offered: spring, summer, fall infrequently.
Max Hours: 9 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 9.
Typically Offered: Fall, Spring, Summer.

PHYS 5950 - Master’s Thesis (1-8 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max hours: 8 Credits.
Grading Basis: Letter Grade with IP
Repeatable. Max Credits: 8.
Additional Information: Report as Full Time.

PHYS 5960 - Master’s Project (1-8 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max hours: 8 Credits.
Grading Basis: Letter Grade with IP
Repeatable. Max Credits: 8.
Additional Information: Report as Full Time.

PHYS 5980 - Advanced Physics Topics (1-3 Credits)
Covers a particular topic as announced in the Schedule Planner. Note:
May be taken more than once for credit in different topics. Note: this
course assumes that students have completed PHYS 2811 or equivalent.
Prereq: Graduate standing. Repeatable. Max Hours: 12 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 12.
Restriction: Restricted to Graduate and Graduate Non-Degree Majors

PHYS 5990 - Independent Study: PHYS (1-3 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max Hours: 3 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 3.

PHYS 6840 - Independent Study: PHYS (1-3 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max Hours: 3 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 3.

PHYS 6939 - Internship (1-6 Credits)
Students will engage in original research projects supervised and
mentored by faculty. Students must work with faculty prior to registration
to develop a proposal for their project and receive permission to take this
course. Repeatable. Max Hours: 6 Credits.
Grading Basis: Letter Grade

PHYS 6950 - Master’s Thesis (1-8 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max Hours: 8 Credits.
Grading Basis: Letter Grade with IP
Repeatable. Max Credits: 8.

PHYS 6960 - Master’s Project (1-8 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max Hours: 8 Credits.
Grading Basis: Letter Grade with IP
Repeatable. Max Credits: 8.

PHYS 6980 - Advanced Physics Topics (1-3 Credits)
Covers a particular topic as announced in the Schedule Planner. Note:
May be taken more than once for credit in different topics. Note: this
course assumes that students have completed PHYS 2811 or equivalent.
Prereq: Graduate standing. Repeatable. Max Hours: 12 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 12.
Restriction: Restricted to Graduate and Graduate Non-Degree Majors

PHYS 6990 - Independent Study: PHYS (1-3 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max Hours: 3 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 3.

PHYS 7840 - Independent Study: PHYS (1-3 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max Hours: 3 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 3.

PHYS 7939 - Internship (1-6 Credits)
Students will engage in original research projects supervised and
mentored by faculty. Students must work with faculty prior to registration
to develop a proposal for their project and receive permission to take this
course. Repeatable. Max Hours: 6 Credits.
Grading Basis: Letter Grade

PHYS 7950 - Master’s Thesis (1-8 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max Hours: 8 Credits.
Grading Basis: Letter Grade with IP
Repeatable. Max Credits: 8.

PHYS 7960 - Master’s Project (1-8 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max Hours: 8 Credits.
Grading Basis: Letter Grade with IP
Repeatable. Max Credits: 8.

PHYS 7980 - Advanced Physics Topics (1-3 Credits)
Covers a particular topic as announced in the Schedule Planner. Note:
May be taken more than once for credit in different topics. Note: this
course assumes that students have completed PHYS 2811 or equivalent.
Prereq: Graduate standing. Repeatable. Max Hours: 12 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 12.
Restriction: Restricted to Graduate and Graduate Non-Degree Majors

PHYS 7990 - Independent Study: PHYS (1-3 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max Hours: 3 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 3.

PHYS 8840 - Independent Study: PHYS (1-3 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max Hours: 3 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 3.

PHYS 8939 - Internship (1-6 Credits)
Students will engage in original research projects supervised and
mentored by faculty. Students must work with faculty prior to registration
to develop a proposal for their project and receive permission to take this
course. Repeatable. Max Hours: 6 Credits.
Grading Basis: Letter Grade

PHYS 8950 - Master’s Thesis (1-8 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max Hours: 8 Credits.
Grading Basis: Letter Grade with IP
Repeatable. Max Credits: 8.

PHYS 8960 - Master’s Project (1-8 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max Hours: 8 Credits.
Grading Basis: Letter Grade with IP
Repeatable. Max Credits: 8.

PHYS 8980 - Advanced Physics Topics (1-3 Credits)
Covers a particular topic as announced in the Schedule Planner. Note:
May be taken more than once for credit in different topics. Note: this
course assumes that students have completed PHYS 2811 or equivalent.
Prereq: Graduate standing. Repeatable. Max Hours: 12 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 12.
Restriction: Restricted to Graduate and Graduate Non-Degree Majors

PHYS 8990 - Independent Study: PHYS (1-3 Credits)
Note: Students must check with a faculty member before taking this
course. Repeatable. Max Hours: 3 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 3.