

PY 810 Course Syllabus

PY 810 - Topological Aspects of Materials

Section 005

SPRING 2017

1 Credit Hour

Course Description

From the catalog: Investigations in physics under staff guidance. May consist of literature reviews, experimental or theoretical projects or special topics lectures. Credits Arranged.

This course will introduce the student to various aspects of topology as they apply to condensed matter physics. Topics covered may include (but are not limited to) Berry phase, 2D/3D topological insulators, graphene, Dirac/Weyl semimetals, Kosterlitz-Thouless phase transitions, Majorana fermions, vortices in superconductors, skyrmion physics.

Learning Outcomes

Obtain a general understanding of aspects of topology as they are relevant in modern condensed matter physics.

Course Structure

The course will consist of a standard series of lectures supplemented with student presentations.

Instructors

Dr Alexander Kemper (akemper) - *Instructor*

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Office Location: Partners Building III, Room 149

Office Hours: TBD

Course Meetings

Lecture

Days: T

Time: 3:00p - 4:15p

Campus: Main

Location: Riddick 314

This meeting is required.

Course Materials

Textbooks

None.

Expenses

None.

Materials

None.

Requisites and Restrictions

Prerequisites

None.

Co-requisites

None.

Restrictions

None.

General Education Program (GEP) Information

GEP Category

This course does not fulfill a General Education Program category.

GEP Co-requisites

This course does not fulfill a General Education Program co-requisite.

Transportation

This course will not require students to provide their own transportation. Non-scheduled class time for field trips or out-of-class activities is NOT required for this class.

Safety & Risk Assumptions

None.

Grading

Grade Components

Component	Weight	Details
Class participation	50	Students are expected to attend lectures and be actively involved in discussions.
In-class presentation	50	Students will present one or more papers covering a research paper/topic relevant to the course content.

Letter Grades

This Course uses Standard NCSU Letter Grading Scale

97	≤	A+	≤	100
93	≤	A	<	97
90	≤	A-	<	93
87	≤	B+	<	90
83	≤	B	<	87
80	≤	B-	<	83
77	≤	C+	<	80
73	≤	C	<	77
70	≤	C-	<	73
67	≤	D	<	70
63	≤	D	<	67
60	≤	D-	<	63
0	≤	F	<	60

Requirements for Credit-Only (S/U) Grading

Performance in research, seminar and independent study types of courses (6xx and 8xx) is evaluated as

either "S" (Satisfactory) or "U" (Unsatisfactory), and these grades are not used in computing the grade point average. For credit only courses (S/U) the requirements necessary to obtain the grade of "S" must be clearly outlined.

Requirements for Auditors (AU)

Information about and requirements for auditing a course can be found at <http://policies.ncsu.edu/regulation/reg-02-20-04>.

Policies on Incomplete Grades

If an extended deadline is not authorized by the Graduate School, an unfinished incomplete grade will automatically change to an F after either (a) the end of the next regular semester in which the student is enrolled (not including summer sessions), or (b) by the end of 12 months if the student is not enrolled, whichever is shorter. Incompletes that change to F will count as an attempted course on transcripts. The burden of fulfilling an incomplete grade is the responsibility of the student. The university policy on incomplete grades is located at <http://policies.ncsu.edu/regulation/reg-02-50-03>. Additional information relative to incomplete grades for graduate students can be found in the Graduate Administrative Handbook in Section 3.18.F at http://www.fis.ncsu.edu/grad_publicns/handbook/

Late Assignments

Late assignments will be handled on a case-by-case basis.

Attendance Policy

For complete attendance and excused absence policies, please see <http://policies.ncsu.edu/regulation/reg-02-20-03>

Attendance Policy

Regular attendance in class is expected of all students.

Absences Policy

Absences due to documented illness and/or class conflicts will be granted to students with excuses that meet the University's definitions. Refer to the university attendance regulation at http://www.ncsu.edu/policies/academic_affairs/courses_undergrad/REG02.20.3.php for further information, including the university definition of excused absences.

Makeup Work Policy

Make-up assignments due to documented illness and/or class conflicts will be granted to students with excuses that meet the University's definitions, found at http://www.ncsu.edu/policies/academic_affairs/courses_undergrad/REG02.20.3.php

Additional Excuses Policy

None.

Academic Integrity**Academic Integrity**

Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct found at <http://policies.ncsu.edu/policy/pol-11-35-01>

Academic Honesty

See <http://policies.ncsu.edu/policy/pol-11-35-01> for a detailed explanation of academic honesty.

Honor Pledge

Your signature on any test or assignment indicates "I have neither given nor received unauthorized aid on this test or assignment."

Electronically-Hosted Course Components

Students may be required to disclose personally identifiable information to other students in the course,

via electronic tools like email or web-postings, where relevant to the course. Examples include online discussions of class topics, and posting of student coursework. All students are expected to respect the privacy of each other by not sharing or using such information outside the course.

Electronically-hosted Components: <https://kemper.wordpress.ncsu.edu/teaching/f17-py810/>

Accommodations for Disabilities

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, student must register with the Disability Services Office (<http://www.ncsu.edu/dso>), 919-515-7653. For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation at <http://policies.ncsu.edu/regulation/reg-02-20-01>.

Non-Discrimination Policy

NC State University provides equality of opportunity in education and employment for all students and employees. Accordingly, NC State affirms its commitment to maintain a work environment for all employees and an academic environment for all students that is free from all forms of discrimination. Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of state and federal law and/or NC State University policy and will not be tolerated. Harassment of any person (either in the form of quid pro quo or creation of a hostile environment) based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation also is a violation of state and federal law and/or NC State University policy and will not be tolerated. Retaliation against any person who complains about discrimination is also prohibited. NC State's policies and regulations covering discrimination, harassment, and retaliation may be accessed at <http://policies.ncsu.edu/policy/pol-04-25-05> or http://www.ncsu.edu/equal_op/. Any person who feels that he or she has been the subject of prohibited discrimination, harassment, or retaliation should contact the Office for Equal Opportunity (OEO) at 919-515-3148.

Course Schedule

NOTE: The course schedule is subject to change.

TBD