

NANO 708 – Spring 2018
Nanomaterials for Photovoltaics
Course Description

Description: Photovoltaic technologies rely increasingly on the engineering of materials and structures on the nanometer length scale. This course will explore the processes by which electricity can be generated from radiant sources, especially the sun, using photovoltaic devices.

Credit Hours: 3 (lecture)

Classrooms: Lecture: EP 251A

Time: Tu, Th 8:30 AM-9:45 AM

Instructor: S. P. Ahrenkiel

Office: EP 221; Hours: MWF 11:00 AM-11:50 AM, and by appointment

Phone: 605-394-5238

Internet: e-mail: Phil.Ahrenkiel@sdsmt.edu

URL: <http://ahrenkiel.sdsmt.edu/>

Texts:

Primary: *The Physics of Solar Cells*, by Jenny Nelson, Imperial College Press, 2003;

Secondary: *Third Generation Photovoltaics*, by Martin A. Green, Springer, 2006;

Please see course notes at <http://ahrenkiel.sdsmt.edu/courses/Spring2018/NANO708>

Equipment: Note-taking supplies. A calculator with trig. and log. functions may be needed to complete some assignments. Students should have access to a computer with Excel and Matlab.

Exams: There will be one midterm exam and one final exam. The final exam will be comprehensive.

Quizzes: There will be quizzes, both announced and unannounced. Attendance or prior arrangement is required for credit.

Homework: Homework problems will be assigned with specific due dates. Late submissions may be assessed a score reduction. Poor legibility may adversely affect scores.

Attendance: Attendance is essential and may be recorded. Work may be deferred only upon prior arrangement.

Grading: Assignments will have the following weight toward the final grade:
Homework: 30%; Midterm Exam: 30%; Final Exam: 30%; Quizzes: 5%;
Attendance & Participation: 5%.

Policies:

- All submitted work must be original. Exams and in-class assignments are strictly independent.
- Cooperation on homework assignments is permissible, but each submission must be unique.
- Brief duplication from third-party sources is acceptable *only* if the source is explicitly identified.
- Direct quotations must be indicated with quotation marks, offset margins, and/or altered font.
- Electronically submitted assignments may be submitted in .pdf format, with permission from the instructor. Student name or ID must be included in the file name and *also* within the document.

Special Needs: *Students with special needs or requiring special accommodations should contact the instructor and the campus ADA coordinator, Jolie McCoy (394-1924) at the earliest opportunity.*