

## 2 credits

**Bulletin Description:** This is the second course of the capstone experience in physics. The student carries out the research project proposed in the first capstone course. Prereq.: PHYS 488 Senior Project I

**Credits:** Senior Project II yields 2 credits.

**Instructor:** Andrei Kryjevski, South Engineering 318D, [andrei.kryjevski@ndsu.edu](mailto:andrei.kryjevski@ndsu.edu),  
Tel: 701-231-7046.

**Office:** by arrangement

**Hours:**

**Course objectives:** Synthesize and apply conceptual understanding and practical knowledge gained from coursework to complete a semester-long research project based on the proposal resulting from Senior Project I. The proposed research must be feasible to be carried out by an undergraduate student and must make an original intellectual or creative contribution to the discipline of physics.

**Required student resources:** To be determined by the student's supervisor.

**Project:** Projects should consist of a methodical investigation to establish new knowledge in physics, for example, by proving (or disproving) a scientific hypothesis or by providing an answer to a specific question. *The research must be original but does not have to be publishable.* Core parts of the research, such as experiments, computer simulations, or derivations should not be outsourced but must be conducted by the student. Ineligible projects include, but are not restricted to: literature reviews, solely reproducing previously published results.

**Work Load:** Students must begin work on the project at the start of semester and are expected to spend 6 – 12 hours/week, including meetings with the supervisor.

**Course Schedule:** The following reports/presentations are required:

1. Midterm oral report (after eight weeks): 20-min presentation and questioning by committee.
2. Draft of written report (must be submitted prior to final oral report).
3. Final oral report (before the end of the Final Examinations week): 30-min presentation and examination by committee.
4. Final written report (due after oral report): a revision, incorporating feedback from the draft of the written report and from the oral report.

The due dates can be extended only under exceptional circumstances. Missing a deadline could lead to a reduction of the final grade. Written reports must follow the AIP style manual format: <http://www.aip.org/pubservs/style/4thed/toc.html>.

**Grading:** A faculty committee oversees Physics 489 and assigns final grades. The grading scheme is A: 90% or above, B: 75% or above but below 90%, C: 60% or above but below 75%, D: 50% or above but below 60%, F: < 50%

Grades are based on the midterm oral report (10%), the final oral report (30%), and the final written report (60%). All reports and presentations must be on a technical level that is understandable by someone with a general physics background, e.g., comparable to a Scientific American article.

**Attendance Statement:** According to NDSU Policy 333 ([www.ndsu.edu/fileadmin/policy/333.pdf](http://www.ndsu.edu/fileadmin/policy/333.pdf)), attendance in classes is expected.

**Additional Statements:** *1. Veterans and student service members with special circumstances or who are activated are encouraged to notify the instructor as soon as possible and are encouraged to provide Activation Orders. 2. Any students with disabilities or other special needs, who need special accommodations in this course are invited to share these concerns or requests with the instructor and contact the Disability Services Office as soon as possible ([ndsu.edu/disabilityservices](http://ndsu.edu/disabilityservices)). 3. The academic community is operated on the basis of honesty, integrity, and fair play. NDSU Policy 335: Code of Academic Responsibility and Conduct applies to cases in which cheating, plagiarism, or other academic misconduct have occurred in an instructional context. Students found guilty of academic misconduct are subject to penalties, up to and possibly including suspension and/or expulsion. Student academic misconduct records are maintained by the Office of Registration and Records. Informational resources about academic honesty for students and instructional staff members can be found at [www.ndsu.edu/academichonesty](http://www.ndsu.edu/academichonesty).*