**Purdue University**
**School of Nuclear Engineering**
**NUCL 553**
**Nano-to-Macro Scale Engineering Applications of Nuclear Science-Technology**

**Instructor**: Prof. Rusi Taleyarkhan
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**Grader/TA:** None

**Schedule**: Lectures (Tu-Th; 3:00-4:20 pm, GRIS 126)
Office Hours - (Flexible/By Appointment)

**Course Objectives**: Nuclear Science-based technologies offer unique opportunities from the nano-to-macro scale, for applications in virtually all fields in everyday life, spanning power/energy, grand challenges in fundamental-applied sciences, industrial applications such as polymerization, sterilization, preservation, radiography, security, safeguards, space missions, agriculture, propulsion, safety, medicine-health, nuclear explosives, etc. The course introduces students to the wide world of practical applications in tandem with discussions on the underlying principles and scientific bases and supplemented with experimental evidence.

**Texts/Handouts**: No prescribed textbook. In-class lectures will be supplemented with as-feasible invited lectures, extensive handout materials, and references from the instructor.

**Grading/Attendance**: Students complete 4 take-home assignments on multiple topics, and submit reports for grading and feedback – spread over the semester duration. Attendance is expected unless excused by the instructor (see notes section and Purdue's policy-related link).

**Grading rubric:**

A+ (85+)
A- (80-85)
B+ (77-80)
B (74-77)
B-(71-74)
C+(67-70)
C (64-67)
C-(61-64)
D+(57-60)
D(54-57)
D-(51-54)
F (<50)

**Notes**:

**** In case of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that a revised semester calendar or other circumstances may necessitate. You will be informed promptly via email or text alerts. Purdue's home page for updates on emergencies, & emergency preparedness (shelter in place; fire-evacuation). In case of sickness or excused absence, submit a physician's certificate or a letter from the Dean of Students or obtain prior approval from the instructor. Purdue's policies related to use of AI/LLM, academic integrity, etc. are posted on the following link: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.purdue.edu%2Finnovativelearning%2Fdownload%2Fspring-2024-required-syllabus-guidance%2F%3Fwpdmdl%3D7692%26refresh%3D6580f3d44207b1702949844&wdOrigin=BROWSELINK ****