VIPER (VIPR)

VIPR 120 Vagelos Integrated Program in Energy Research (VIPER)
Seminar, Part I
This is the first part of the two-semester seminar designed to introduce students to the VIPER program and help them prepare for energy-related research. During this course, invited speakers from across Penn will share their research to introduce students to a breadth of different topics within energy science, and research articles on various energy-related topics will be discussed. Students will be provided guidance on how to identify research groups of interest and reach out to faculty members in preparation for their research projects during the summer. Library research, presentation of data, basic research methods, research ethics, data analysis, and advisor identification will also be discussed. Students will develop their scientific research skills by reviewing scientific literature and synthesizing their findings, and they will build their collaboration skills by regularly working together in small, interactive student groups. Sample energy topics discussed will include: Applications of nanostructured materials in solar cells; Solid oxide fuel cells; Global climate modeling: radiant heat transfer; Nanocrystal-based technologies for energy storage; Photo-bioreactor systems for mass production of micro-algae; Advanced rare earths separations chemistry; Modeling of oxides for solar energy applications; and Electronic transport in carbon nanomaterials. Admission to VIPER program required to enroll.
Taught by: Vohs, Rappe and Hutchings
Course usually offered in spring term
Activity: Seminar
0.5 Course Units

VIPR 121 Vagelos Integrated Program in Energy Research (VIPER)
Seminar, Part II
This is the second part of the two-semester seminar designed to introduce students to the VIPER program and help them prepare for energy-related research. In this semester we will continue to discuss research articles on various energy-related topics, best practices for library research, presentation of data, basic research methods, research ethics, data analysis, and funding options. A large focus of the course will also be on presenting (in both written and oral form) the work from the students' summer research internships.
Taught by: Andrew M. Rappe, John M. Vohs, and Kristen L. Hughes
Course usually offered in fall term
Prerequisite: VIPR 120
Activity: Seminar
0.5 Course Units