

TESTIMONIALS

STUDENT TESTIMONIALS



"This course is a comprehensive overview of modern science. You will be taught leading edge topics in various disciplines. This is the most valuable course I

have ever taken."

"That if you try you can understand important concepts of extremely high level science even if you do not understand much in that field or topic."



"It was wonderful to get so many viewpoints from masters of different sciences. It helped to promote learning even beyond my major's curriculum."

riculum."

"...this is the future of the world and you must study this. Because, we are in need of people that need to know this as part of next generation of engineer or scientist."

Nanosystems Emphasis area is open to all students in science-related majors including:

1. Biology
2. Chemistry
3. Engineering
4. Mathematics
5. Physics

<http://wvnano.wvu.edu/NUE>

THE NANOSYSTEMS EMPHASIS AREA PROJECT TEAM INCLUDE:

Principal Investigator:

Dimitris Korakakis, CEMR, CSEE NUE

Co- Principal Investigators:

Phyllis Barnhart, WVURC, WVNano;

Boyd Edwards, ECAS, Physics;

Robin Hensel, CEMR, Freshman Engineering;

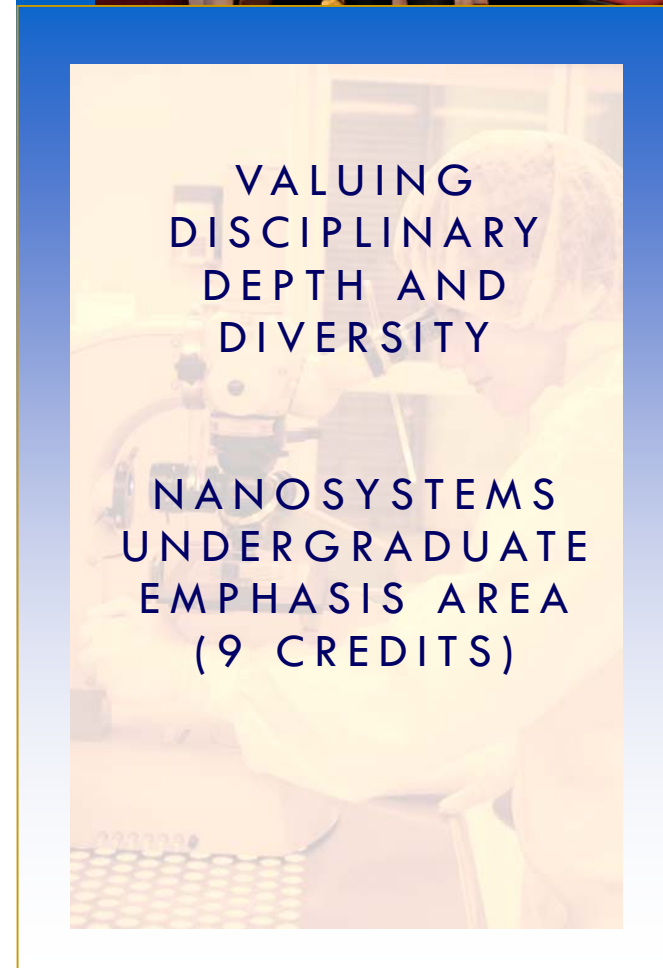
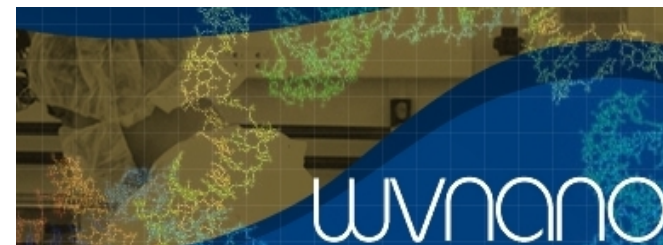
Lawrence Hornak, CEMR, CSEE;

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ABOUT WVNANO AND EDUCATION

WVNANO INITIATIVE

The WVNano Initiative is West Virginia's focal point for discovery and innovation in nanoscale science, engineering, and education (NSEE). WVNano's central objective is to advance the research environment and diversify West Virginia's economic base through cultivation and growth of research in targeted nanoscale science and engineering (NSE) areas.

Education is an integral component of WVNano. WVNano envisions a comprehensive effort to not only enhance formal education but also informal education to foster public awareness, engagement, and understanding of nanoscale science, engineering, and technology.

A challenge associated with the promise of nanoscale science and engineering is the needed training the workforce must have to support its advancement and implementation. The inherent interdisciplinary nature of this training is not well addressed by traditional academic, discipline-based programs. WVNano strives to provide opportunities for integrating students' educational experience across diverse areas including microfabrication, electromagnetics, nanotechnology, pharmacology, microfluidics, biometrics, physics, and chemistry.



APPROACH AND COURSES

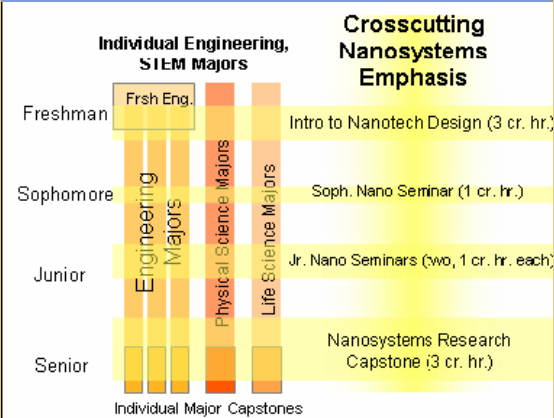
NANOSYSTEMS EMPHASIS AREA

The *Nanosystems Undergraduate Emphasis* is a creative, broadly applicable, and interdisciplinary approach to prepare students for the NSE workplace. The program includes labs, seminars and placement in cutting edge WVU research labs, with an overall emphasis on student contact with WVU scientists and engineers.

Goal: Enable students to understand the role of their chosen disciplines in the realization of nanosystems of societal impact, function in interdisciplinary teams, and both value and use team disciplinary diversity for solution of nanoscale engineering problems.

Course work and requirements:

- Intro to Nanotech Design (3 cr)
- Sophomore seminar (1 cr)
- Junior seminars (2, 1 cr each)
- Research capstone (3 cr)
- **The program is designed to fit within students' major requirements.**



NANOSCALE SCIENCE AND ENGINEERING

NSE involves the manipulation of matter on the atomic and molecular scales. This precise control enables the development of materials and devices with broad societal benefits. Applications include:

- Devices to deliver drugs directly to cancer cells
- Faster computers
- Energy efficient manufacturing processes and products
- Methods to clean the environment, especially water sources

NANOSCIENCE IN THE FUTURE

There are some predictions that nanotechnologies could revolutionize many areas of society because of its wide ranging economic, environmental and ethical implications. Students in the emphasis area will not only gain technical knowledge, but will also be trained in the skills necessary to engage with the broader public in a dialogue about the role of NSE and other cutting-edge technologies in society.

