



Designing Matter is a Common Course at UVA with its center of gravity in the sciences that explores our relationship to matter across the length scales.







Plan

- 1 Common courses
- 2 History of idea
- 3 University support
- 4 Other goals
- 5 Project vision
- 6 Topics and speakers
- 7 Questions to consider
- 8 Teaching team
- 9 Participants
- 10 Assignments
- 11 Discussion







New curriculum initiative emphasizing shared experience and unified knowledge across disciplines and a general theme.

Intro to cutting edge ideas and programs.

Features award winning faculty as speakers.

Large classes (1st year: 160; 2nd and 3rd: 300-350) with small discussion sections.

Students: humanities curious about science; scientists wanting bigger picture; future teachers (interdisciplinary; content; methods).

Component of the "Teachers for a New Era" collaboration between the College and School of Education (Carnegie, Ford, Annenberg).







CF involvement

Invitation from Deans: 9/2/03. Retreat: 9/5/03.

Design common course meeting: Spring 03.

NSF nano grant project exhibit: Fall 02.

MANY conversations with friends and colleagues.

Long term interests and questions: 70s – now.







Deans' Offices

Ed Ayers, Dean of Arts and Sciences
Lori Schuyler, Assistant to the Dean
George Hornberger, Associate Dean for Sciences
Karen VanLengen, Dean of Architecture School

Teachers for a New Era Program Victor Luftig, Director

<u>Teaching Resource Center</u> Judith Reagan, Dorothe Bach, Deandra Little

Other Deans

Penny Rue, Dean of Students
Nicole Hurd, Office of Undergraduate Excellence
and Undergraduate Research Network

Curry School of Education
Randy Bell, Secondary Science Education







Website (S. Johnson, web designer): project gallery, exhibit, resources

Sessions documented on video

Grants (NSF/other): undergrad research, course development, experiential and service learning, other collaborative projects.

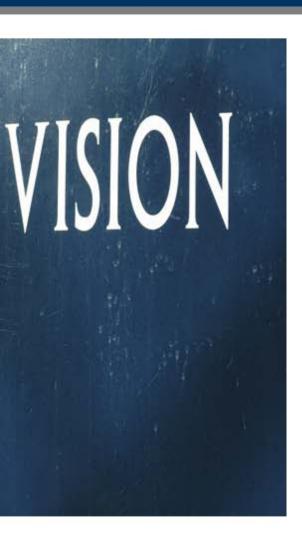
Community outreach (e.g. schools, organizations)

Publications

Fund raising/development







Important points

People: students, teaching team, experts, administrators, broader community

Collaborative learning experiment

Interdisciplinary conversation

Why matter?

Why design?





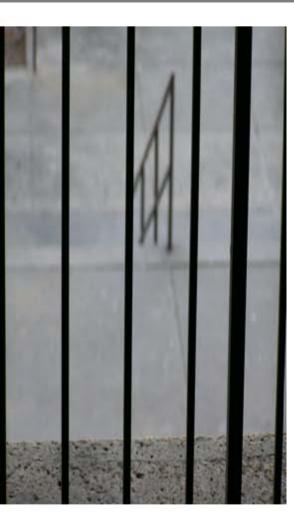


Week

- 1 Intro
- 2 Laser interactions with matter
- 3 Molecular design and synthesis
- 4 Nanoscience, ethics and technology
- 5 Human genetics
- 6 Treating damaged tissues: cells and organs
- 7 Perception and cognition of matter
- 8 Computer graphics and design ethics
- 9 Contemporary art
- 10 Architecture: structures and landscapes
- 11 Human footprint on biogeochemical cycles
- 12 Energy science and policy
- 13 Astronomy: origins of matter/magnitudes
- 14 Final session







Design process and matter life cycle

- 1 What matter do you work with?
- 2 Where does it come from? How is it procured?
- 3 How do you represent matter?
- 4 How do you see, measure, and shape matter?
- 5 What are you trying to create or understand?
- For what purpose? To whose benefit?
- 7 How is your creation used?
- 8 What happens when you are through with it?
- What parts of the design process interest you most? Is your approach representative or unique in your field?
- 10 What is the value of your work to society? What are the broader impacts?







Project coordinator: CF: chemistry, humanities Project assistant: EP: art, anthropology, premed

Graduate teaching assistants

JA4: anthropology/archeology (phys, envi sci)

MD1: urban planning (mech eng)

RF6: environmental science (microbial ecology)

RM1: english (biochem, env eng, chem teaching)

Undergraduate project consultants

SG3: chemistry, physics (math, cs)

BG3: chemistry, biology (envi sci)

SG4: premed, ethnomusicology (health ed)

LJ2: math, philosophy (many other interests)

AM3: premed, biochemistry (global health)







All of you

Humanities students

Science students

A school, E school, Ed school, preX, etc

Some combination of the above

Professors/speakers

Administrators

Other friends and broader community







A collaborative learning experiment

Weekly two hour sessions
Weekly one hour discussion on historic Lawn
Readings and experiential learning assignments

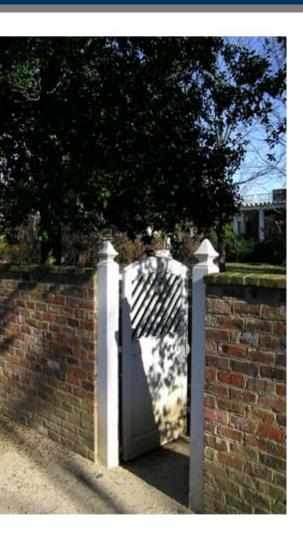
Short essays: formal reflection on course content

Projects: proposals, research awards

Lab notebook (world as lab): projects, sessions







Instructions:

Divide into small groups with GPC or UPC Very quick introductions
Discuss issues below Identify a spokesperson and web reporter

What is the most: exciting, compelling confusing, troublesome

about:

the assignments? the course content? Cradle to Cradle?