

# The Task Force on the Undergraduate Educational Commons

## MacVicar Day 2005:

What should we achieve in a four-year MIT education?



## Purpose of the Task Force

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The Task Force is conducting a fundamental, comprehensive review of the common educational experience of our undergraduates.



## Charge to the Task Force

- Review MIT’s educational mission and reaffirm or modify, as appropriate
- Derive a set of specific educational goals for all undergraduates from the mission
- Develop and articulate the content of the common undergraduate curriculum, and how it fits with the departmental curricula - a systems approach
- Develop and recommend the formal structure of the curriculum



## Overview of the GIRs

	<u>Subjects</u>
<b>Science Requirement</b>	<b>6</b>
Chemistry 3.091, 5.111, or 5.112	
Physics 8.01, 8.012, 8.01T, or 8.01L & 8.02, 8.022, or 8.02T	
Calculus 18.01, 18.01A, 18.013A, or 18.014 & 18.02, 18.02A, 18.022, 18.023, 18.023A, or 18.024	
Biology 7.012, 7.013 or 7.014	
<b>Laboratory (LAB) Requirement</b> 12 units	<b>1</b>
<b>Restricted Electives in Science and Technology (REST) Requirement</b>	<b>2</b>
<b>Humanities, Arts, and Social Sciences Requirement</b>	<b>8</b>
<small>Includes 2 Communication Requirement subjects (CI-H)</small>	
Total GIR Subjects Required for S.B. Degree	<b>17</b>
<b>Communication Requirement</b>	
<small>2 Communication-Intensive HASS subjects (CI-H)</small>	
<small>2 Communication-Intensive Major subjects (CI-M)</small>	
<b>Physical Education Requirement</b>	
<b>Departmental Program and Unrestrictive Electives</b>	
<small>The departmental program may specify some of the GIR subjects, and includes an additional 180-198 units beyond the GIRs</small>	



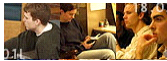
## Goals for an MIT Education

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An MIT education is one grounded in science and technology that:

- ignites a passion for learning,
- provides the intellectual and personal foundations for future development, and
- illuminates the breadth, depth and diversity of human knowledge and experience,

in order to enable each student to develop a personal coherent intellectual identity.



## Working Principles

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An MIT education should foster:

- A persistent passion for learning
- Intellectual diversity
- An innovative approach to core knowledge
- Collaborative learning
- Education for responsible leadership



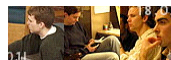
## Discussions to Date

- Science Core
- REST Requirement
- HASS Requirement
- GIRs & the Major Programs
- Pedagogy
- Advising
- Freshman Learning Communities
- Communication Requirement
- Lab Requirement
- Project-based Experiences
- Social Responsibility, Ethics & Academic Honesty
- Double Degrees & Double Majors
- Creativity, Innovation & Leadership
- The Freshman Experience
- Interdisciplinary Learning
- Diversity
- AP Credit
- Study Abroad
- Cross-School Collaborations



## Today's Focus

- Science Core
- REST Requirement
- HASS Requirement
- GIRs & the Major Programs
- Pedagogy
- Advising
- Freshman Learning Communities
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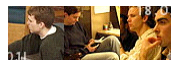
## Components of an Ideal Program

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>○ Fundamental studies in HASS:             <ul style="list-style-type: none"> <li>○ Human cultures</li> <li>○ History</li> <li>○ Literature</li> <li>○ Economics</li> <li>○ Government</li> <li>○ Social structures &amp; organizations</li> <li>○ Foreign language</li> <li>○ Philosophy</li> </ul> </li> <li>○ Writing skills</li> <li>○ Speaking skills</li> <li>○ Ability to analyze complex texts</li> <li>○ Sensitivity to artistic expression</li> <li>○ Understanding of global systems</li> <li>○</li> <li>○</li> </ul> | <ul style="list-style-type: none"> <li>○ Rigorous fundamentals of science and math:             <ul style="list-style-type: none"> <li>○ Physics</li> <li>○ Chemistry</li> <li>○ Math</li> <li>○ Biology</li> </ul> </li> <li>○ Computation</li> <li>○ Engineering ideas and methods</li> <li>○ Probability and statistics</li> <li>○ Complex systems</li> <li>○ Brain &amp; cognitive science</li> <li>○ Earth science</li> <li>○ Environmental studies</li> <li>○ Differential equations</li> <li>○ Linear algebra</li> <li>○</li> <li>○</li> </ul> |
| <ul style="list-style-type: none"> <li>○ Science, Technology &amp; Society</li> <li>○ Ethics</li> <li>○ Diversity</li> <li>○ Management</li> <li>○ Design</li> <li>○</li> <li>○</li> </ul>  | <ul style="list-style-type: none"> <li>○ Study abroad</li> <li>○ Service Learning</li> <li>○ Leadership</li> <li>○</li> <li>○</li> </ul>  |
| <ul style="list-style-type: none"> <li>○ Departmental Program</li> </ul>  |   |

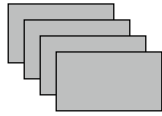


## Sci-Eng Core: Emerging Recommendations

- Expand the educational scope of the core
  - Requirements?
  - Opportunities?
- Maintain the current rigor of the core, regardless of any other changes
- Replace the Laboratory Requirement with a project-based experience
  - First two years?
  - Prior to graduation?



## Sci-Eng Core: Example Model 1

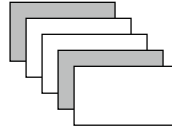


4 prescribed subjects

From the list of:

- 2 Physics
- 2 Math
- 1 Chemistry
- 1 Biology

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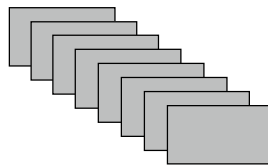
2 subjects from a short list

For example, in addition to two from the left-hand list,

- Differential Equations
- Probability & Statistics
- Earth Systems
- Computation
- Interactive Engineering



## Sci-Eng Core: Example Model 2



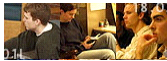
8 prescribed subjects

- Today's six-subject core
  - Two Physics
  - Two Math
  - One Chemistry
  - One Biology
- Also, replace the REST Requirement with 2 additional prescribed subjects



## HASS Requirement: Ideas for Change

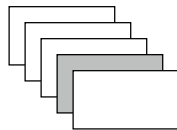
- Make the requirement *simpler*
- Provide a faceted common experience
  - 5 major themes to choose from
  - Retain small classes
  - One semester or two semesters?
  - Imbed communication intensive characteristics?
  - Ensure appropriate breadth to eliminate distribution?
- Allow broad choice beyond the common experience
  - Require a concentration?



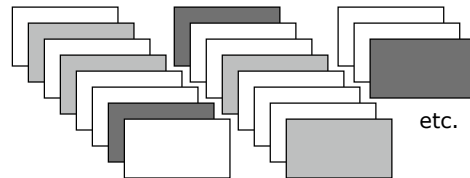
## HASS Requirement: Example Model 1

Freshman Fall

All Other Semesters



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Select 1 theme from 5 choices

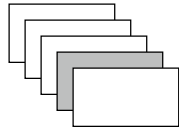
Choose 7 additional HASS subjects w/ 3 in a concentration

- Revolution
- Love
- Creativity
- Democracy
- Shakespeare



## HASS Requirement: Example Model 2

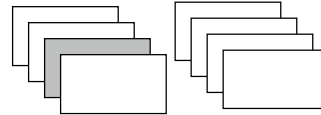
Freshman Fall



Select 1 theme from 5 choices

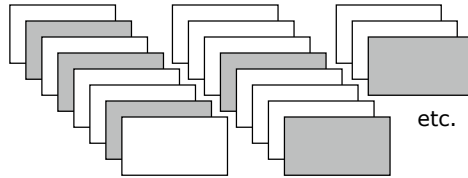
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Sophomore Fall



Select 1 discipline-oriented subject within same theme

All Other Semesters



etc.

Choose 6 additional HASS subjects



## The Task Force on the Undergraduate Educational Commons

Send your comments to:  
[edcommons-request@mit.edu](mailto:edcommons-request@mit.edu)

