Global Integrative Studies (GIST) Core Curriculum

Contextual Framework

Mission and Vision for Undergraduate Education

An undergraduate experience should instill in students the capacity to effect positive change in their world. This generation of students should be known for the depth and breadth of their individual abilities and for the power of their collective intelligence: including the ability to apply comprehensive knowledge of a discipline, to understand the complex nature of systems, to use advanced technologies in innovative ways, and to apply professional qualities necessary to navigate among and lead members of multifunctional teams in order to address complex global challenges. Undergraduate education should be understood as the foundation for students' continuing growth and development. It should promote the knowledge, attitudes, and abilities that prepare students to become global-ready citizens, effective members of diverse communities, and lifelong learners.

Linked to this Mission and Vision are six imperative that will frame the work of the next three to five years:

1. The MSU learning environment must be one in which teaching is grounded in theory, supported by evidence of student learning, and incorporates pedagogies, technology, blended learning and high impact learning strategies (e.g. internships, UG research, Study Abroad, Service Learning, etc.). There must be support systems that actively engage students as partners in the expansion of their knowledge;
2. What we do and how we do it is linked to and impacted by learning assessment driven by clearly articulated learning outcomes;
3. Students, faculty, and staff must actively engage with opportunities that extend learning beyond the classroom and institution, enhancing involvement in and discourse around issues of local, state, regional, national, and international importance, assisting students in understanding their responsibility to self and others;
4. We must promote pipeline and college transition programs that assist both pre-college and early college students in developing the knowledge, attitudes, and skills needed for a successful post-secondary education experience;
5. What we do must foster learning and promote retention among a diverse student community;
6. Integrated partnerships, both internal and external to the institution, must be seen as essential to fostering a dynamic undergraduate population and an integrated undergraduate experience.

To guide the undergraduate learning experience, MSU has defined five specific learning outcomes that capture the "professional qualities" that are expected of all students graduating from MSU. These are:

*Analytical Thinking***:** The MSU graduate uses ways of knowing from mathematics, natural sciences, social sciences, humanities, and arts to access information and critically analyzes complex material in order to evaluate evidence, construct reasoned arguments, and communicate inferences and conclusions

- Acquires, analyzes, and evaluates information from multiple sources
- Synthesizes and applies the information within and across disciplines
- Identifies and applies, as appropriate, quantitative methods for defining and responding to problems
- Identifies the credibility, use and misuse of scientific, humanistic and artistic methods

Cultural Understanding: The MSU graduate comprehends global and cultural diversity within historical, artistic, and societal contexts

- Reflects on experiences with diversity to demonstrate knowledge and sensitivity
- Demonstrates awareness of how diversity emerges within and across cultures

Effective Citizenship: The MSU graduate participates as a member of local, national, and global communities and has the capacity to lead in an increasingly interdependent world

- Understands the structures of local, national, and global governance systems and acts effectively within those structures in both individual and collaborative ways
- Applies knowledge and abilities to solve societal problems in ethical ways

Effective Communication: The MSU graduate uses a variety of media to communicate effectively with diverse audiences

- Identifies how contexts affect communication strategies and practices
- Engages in effective communication practices in a variety of situations and with a variety of media

Integrated Reasoning: The MSU graduate integrates discipline-based knowledge to make informed decisions that reflect humane social, ethical, and aesthetic values

- Critically applies liberal arts knowledge in disciplinary contexts and disciplinary knowledge in liberal arts contexts
- Uses a variety of inquiry strategies incorporating multiple views to make value judgments, solve problems, answer questions, and generate new understandings

Conceptual Framework

The ability of higher education to assist students in developing the disciplinary, systems, and professional capacities needed to navigate a rapidly changing global environment require that we carefully examine our model of undergraduate education in the context of the mission, vision, and intended learning outcomes.   Michigan State University President, Lou Anna K. Simon, summarized our challenge when she stated: "Dramatic changes in society, in knowledge, and in the nature of work have created a growing need for a more highly educated, adaptive, innovative, and engaged citizenry."[1] She went on to note that a new model will require "the ability of every academic discipline to reach beyond its own discourse community, engaging its conceptual tools and knowledge to address problems that concern the world community at large."

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[1] See http://worldgrantideal.msu.edu/monograph/index.php

In the mid to late 19th Century higher education was propelled into a new era of industrial machines thanks in part to the Morrill Act, with the purpose of establishing the land-grant colleges:

> …without excluding other scientific and classical studies and including military tactic, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.[2]

A 21st Century transformation of this Act requires a systematic examination of undergraduate education, our approach to curriculum development, and a compelling research agenda focused on understanding:

a. professional life in a new era of cognitive and collective intelligence technologies,
b. how this is reflected in the knowledge, attitudes, and abilities students must develop,
c. the demand for individuals with these characteristics across economic sectors,
d. the fundamental differences between existing curricular models and those we would design to achieve the learning outcomes,
e. the impact of alternative curricular models (learning experiences) on student learning, and
f. the effectiveness of this new educational paradigm in nurturing the development of working professionals with the ability to guide multifunctional teams in the innovation and implementation of solutions to complex global challenges.

A New Type of Professional: From "I" to "T"

The primary focus of undergraduate education has been on preparing students with deep knowledge in a discipline.   This is inclusive of efforts to develop students' analytical and problem solving abilities but less likely to include a coherent focus on enhancing a student's ability to network, understand the perspectives of others, or to communicate effectively across disciplinary and/or cultural boundaries. The current educational paradigm successfully prepares what has been termed the "I" professional. The "I" professional is an individual with an in-depth training in an academic discipline with a limited connection to the thoughts and ideas of other disciplines.

Studies conducted by the MSU Collegiate Employment Research Institute and literature focusing on the need for individuals with abilities that transcend the usual boundaries of disciplines[3] strongly supports a significantly expanded set of student abilities. A recently completed study[4], as well as several studies in progress have focused on the competencies employers expect beyond simply the mastery of one's academic major. Over the past decade employers have placed increasing importance on competencies that allow young professionals to handle information from multiple sources, to advance professional relationships across organizations, to contribute innovatively to organizational practices, and to communicate with understanding across social, cultural, economic and scientific boundaries. Individuals

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[2] Morrill Act of 1962
[3] http://www.ceri.msu.edu/wp-content/uploads/2010/07/Holistic-Engineering-Book-Chapter-20081015.pdf ; http://www.ceri.msu.edu/wp-content/uploads/2010/06/A-Case-for-T-Shaped-Professionals-20090907-Hossein.pdf
[4] http://www.ceri.msu.edu/wp-content/uploads/2010/01/skillsabrief1-2010.pdf

with the abilities to bridge the traditional boundaries between disciplines have been referred to as "hybrid,"[5] "boundary spanners," or T-shaped professionals.

Like the "I" shaped professional, T shaped professionals possess deep disciplinary knowledge in at least one area and deep knowledge of at least one system, with deep knowledge of systems defined as understanding the complex ways things impact each other and how individuals with varying disciplinary backgrounds conceptualize these interactions (Fig. 1). Systems include such things as water and food, health, energy, ecosystems and sustainability, transportation, finance, etc. It is no accident that many of these systems represent the complex global challenges of humanity and are often directly linked to the major research thrusts of institutions like MSU (see Table 1). However, the potential to function as what Spohrer calls "adaptive innovators," requires the capacities needed to span effectively the boundaries between disciplines, systems, and cultures, the cross bar on the T. In addition, relative to the "ME", Dr. Phil Gardner of the Collegiate Employment Research Institute (CERI) discusses that an important component of a student's ability to function as a T professional is their ability to understand their core values and motivating purpose [what problem(s) do they want to solve by intentionally reflecting on who they are, what they know and what professional connections can leverage them toward engaging in their purpose].
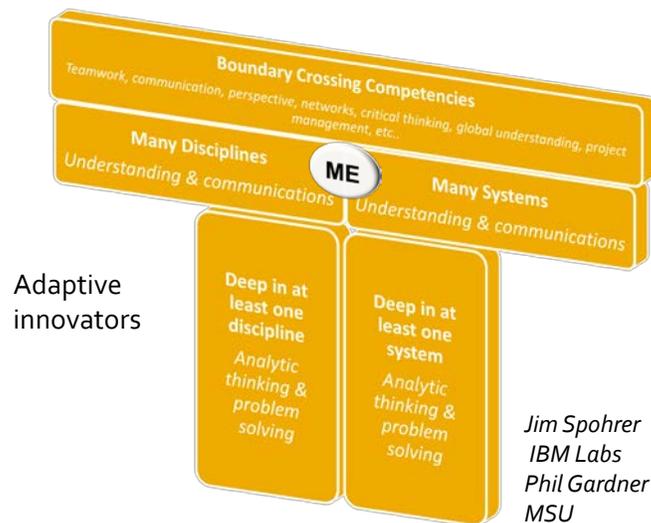
Figure 1. The T Shaped Professional.

In part, the knowledge, attitudes, and abilities that characterize the boundary spanner or T-shaped professional are encompassed by the MSU Institutional Learning Goals as well as those adopted by other universities and promoted by the American Association of Colleges and Universities (AAC&U) in their LEAP initiative.[6] On close inspection, one could argue that the liberal arts education of the 21st Century is the education of the T-Shaped professional – "adaptive innovators." The challenge lies in creating a post-secondary learning experience that prepares students with the abilities to work effectively in the professional world defined by this new paradigm.

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[5] Palmer, Colin. Hybrids – a critical force in the application of information technology in the nineties. J Info Tech, 5:232-235, 1990

[6] See http://www.aacu.org/leap/vision.cfm

IBM's Grand Challenges – Smarter Systems[7]	MSU Research Thrusts	GIST "Themes"

A. Systems that focus on flow of things that humans need (~15%)
 	
1. Transportation & supply chain
2. Water & waste recycling/Climate & green tech
3. Food & products manufacturing
4. Energy & electricity grid
5. Information and Communication Technologies (ICT access)
B. Systems that focus on human activity and development (~70%)
6. Buildings & construction (smart spaces) (5%)
7. Retail & hospitality/Media & entertainment (tourism) (23%)
8. Banking & finance/Business & consulting (wealthy) (21%)
9. Healthcare & family life (healthy) (10%)
10. Education & work life/Professional jobs & entrepreneurship (wise) (9%)
C. Systems that focus on human governance - security and opportunity(~15%)
11. Cities & security for families and professionals (property tax)
12. States/regions & development opportunities/investments (sales tax)
13. Nations/NGOs & rights/rules/incentives/policies/laws (income tax)
	1. **Alternative Energy**
	2. **Environment** (Human and Natural Systems)
	3. **Food Safety & Security**
	4. **Technology**
	5. **Nuclear Science & Astronomy**
	6. **Physical Sciences and Technology**
	7. **Complex Materials**
	8. **Arts & Humanities** (e.g. Civic responsibility, Social issues, Human expression)
	9. **Life Sciences**
	10. **Plant Science**
	11. **Health & Behavior**
	12. **Education (K-16 reform)**
	13. **International**
		The following are suggestive of contemporary issues and global themes that might be addressed in GIST courses:
		
		• **Responsible global citizenship**
		  o Ethics & governance
		• **Sustainability**
		  o Food, water, environment
		• **Social justice**
		  o Conflict, peace, poverty, health, inequality
		• **Technology and Creativity**
		  o Social networking, cognitive/brain science, nanotechnology, "big data"

Table 1. Systems - IBM's Grand Challenges, MSU's Research Initiatives, and possible Global Integrative Studies (GIST) "Themes"

Innovation in Integrative Studies: Moving To GIST

Background

In these increasingly complex times, "preparing" for one specific kind of work has become nearly impossible. Even the most advanced preparation, in many fields, might well be obsolete in only a few years after graduation…The student must also realize that one of the most sophisticated skills is being able to choose from plentiful resources and

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[7] Spohrer, James. Urban systems and Service Innovation: cities and Universities Partnering to Enhance Sustainability. http://www.ceri.msu.edu/wp-content/uploads/2010/07/Urban-Systems-and-Service-Innovation-201004202.pdf. April, 2010.

create integration around areas of learning." (Committee to Review the Undergraduate Experience [CRUE] Opportunities for Renewal Report, 1988).

The CRUE Report ushered in an era of MSU's general education requirements that have the traditional expectations for writing and math, but place an emphasis on integrative studies coursework. For several years, MSU faculty and staff have discussed ways to re-envision the Integrative Studies program in the context of the Institutional Learning Goals and associated Global Competencies (see attached). The University Committee on Liberal Learning (UCLL) recommended steps to focus MSU's Integrative Studies courses on global problems arising from the intersections of the arts and humanities, the social sciences, and the natural sciences. Based on the UCLL recommendations, the Directors of the three Integrative Studies Centers (Arts and Humanities, Social Science, and Science) along with the Associate Deans from the administering colleges have been meeting to generate a vision upon which learning experiences and assessment efforts could be designed.

GIST Guiding Principles/Key Elements

The following represents the key guiding principles that would frame a new model of Integrative Studies. These grow out of conversations among the Center Directors and the Associate Deans of the core colleges.   The Venn diagram in Figure 2 illustrates how each of the major components of this model come together to create a coherent core experience for all undergraduates at MSU.

- Global Integrative Studies (GIST) should facilitate, in President Lou Anna K. Simon's words, "the ability of **every** academic discipline to reach beyond its own discourse community, engaging its **conceptual tools** and knowledge to address problems that concern the **world community at large.**" It should foster "a new conversation that speaks with a collective voice to address challenges confronting all nations and cultures."[8]

  Key elements:
    o Learning in GIST courses should be interdisciplinary - "work(s) across academic disciplines to **combine** the strengths of the humanities, social sciences, and the natural and applied sciences to combat complex problems requiring more than one approach."[9]
    o Integration must occur not only between disciplines within the core colleges but also between colleges (interdisciplinary).
    o Conceptual tools to address problems is an emphasis
    o Real world, global context is highlighted. All GIST courses should be developed with a focus on global issues so that MSU students are prepared to be "citizens of the world."

- GIST should fulfill the Bolder by Design goals related to enhancing the student experience and internationalizing the curriculum for all students.

- Courses should be learner-centered, rather than teacher-centered.[10]
    o Teaching-centered approach emphasizes coverage of content: coverage of content determines learning outcomes.

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[8] See http://www.worldgrantideal.msu.edu/_files/documents/monograph.pdf, page 12.
[9] Ibid, page 11.
[10] See Robert B. Barr and John Tagg, "From Teaching to Learning: A New Paradigm for Undergraduate Education," *Change* (Nov.-Dec. 1995): 12-25.

- o Learning-centered approach emphasizes student learning outcomes: learning outcomes determine content coverage. (Backward Design)

- The curriculum/courses should be developed with intentionality and coherence around a set of institutional learning goals and outcomes for integrative studies at Michigan State University.
    - o The Undergraduate Learning Goals (ULG) and Global Competencies (GC), considered holistically, are themselves a set of integrative learning goals; therefore, the UILG and associated GC constitute the student learning outcomes for GIST as a holistic program.

- Teaching and learning in the program should reflect theory and practice related to teaching and learning pedagogy, students' cognitive development, and other literature related to global, interdisciplinary, and integrative teaching and learning.
    - o Experiential learning opportunities (e.g., research opportunities, service learning, internships, work experience, study abroad, etc.) should be an aspect of the model.

- A "pedagogy of the contemporary,"[11] which places the contemporary forces/developments (e.g., globalization, the digital revolution, the biological revolution) that are transforming societies, should be at the center of the GIST curriculum (see Table 1).
    - o A "pedagogy of the contemporary" is situated in the present—contemporary learners facing contemporary problems and issues—is intellectually rigorous—with the disciplines serving as analytical lenses leveraging integration—and personally meaningful—engaging students in their own experience with the contemporary and legitimating their participation as active agents.

- The curriculum/courses should foster students' understanding of and appreciation for the diversities of the human experience, as well as of key ideas and issues in the human experience.
    - o GIST should strive "to create a learning community that fosters both intellectual and personal engagement leading to enhanced understanding, respect, and the celebration of differences from the conviction that the skills and knowledge derived from such engagement prepare individuals for meaningful and productive lives as workers and citizens."[12]

- There must be a vibrant faculty development program that trains faculty in the design of and pedagogical approaches to interdisciplinary teaching and course development - principles of backward design, assessment, the use of e-portfolios, etc.

- There should be a well-defined program of learning outcomes assessment to ensure that the intended outcomes are achieved.

- GIST as the core of the undergraduate curriculum should be vertically integrated throughout the undergraduate experience.

- There should be meaningful linkages between GIST and disciplinary learning that are transparent to the student.

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[11] See Veronica Box Mansilla, "Integrative Learning: Setting the Stage for a Pedagogy of the Contemporary," *Peer Review* (Fall 2008): 31.

[12] See http://www.worldgrantideal.msu.edu/_files/documents/monograph.pdf, page 3.

- We should consider language and development activities associated with changing the culture of advising related to the GIST curriculum.

- Any eventual modification to Integrative Studies must:
  - Not result in a distribution model.
  - Not increase the costs, administrative structures, or complexity of the current system
  - Not increase the credit burden to students

Initiatives Focused on Moving Toward GIST

Initially, Provost Kim Wilcox charged the APUE and the University Committee on Liberal Learning to "**review ways to enhance our model of general education,** recognizing that, at the core, the concept of integrative studies must be maintained" since then, MSU has taken a number of steps to "tweak" the current model, including:

- Adopted institutional undergraduate learning outcomes and global competencies;
- Through an intensive series of workshop with faculty and staff, designed a developmental rubric for each of the institutional undergraduate learning outcomes;
- Participated in the AAC&U's "General Education for a Global Century" initiative;
- Implemented both attitudinal and learning outcomes assessment across all three IS programs;
- Piloted a set of model GIST courses focused on food and/or water that were collaboratively developed during a series of interdisciplinary faculty development workshops in 2012-2013 and offered as IAH, ISS, and ISB courses in 2013-2014;
- Piloted GIST first-year course in select freshman study abroad seminars in Summer 2013;
- Presented the pilot GIST course development project as a workshop at AAC&U's "Global Learning in College" conference in October 2013;

MSU could continue to "tweak" the current model of integrative studies to achieve the principles previously outlined. However, a "bolder" alternative would be to adopt a Global Integrative Studies curriculum that would reflect the fundamental principles envisioned in this document.

Fig. 2 Components of GIST Curriculum

Global – signifies a focus on topics, theories, and issues representing multiple places, cultures, worldviews, and contexts in a way that facilitates students' ability to:
- connect local and global contexts;
- understand their relative postions in the world as citizens and scholars;
- understand and interpret complex issues facing humans and the planet from diverse perspectives; and
- be open to and value—albeit not necessarily agree with—diverse opinions, perspectives, and ways of knowing

Integrative and Global connection:
- Both methods highlight that students need to learn concepts from multiple perspectives, both culturally-based and disciplinary-based.
- Both concepts suggest that students change their worldview by being exposed to multiple discourses and ways of knowing.
- Both concepts assume that students will be better thinkers and responsible global citizens by having access to multiple ways of knowing.

Global and Learning-centered connection:
- Both concepts call for the localization of information to make it relevant.
- Both concepts value what a students can learn and do with that learning, not what they can memorize or repeat.
- Both concepts signify a change in understanding or perspective—students do not just know more, they actually think and reflect in substantively different ways .

Global

Integrative

Learning-Centered
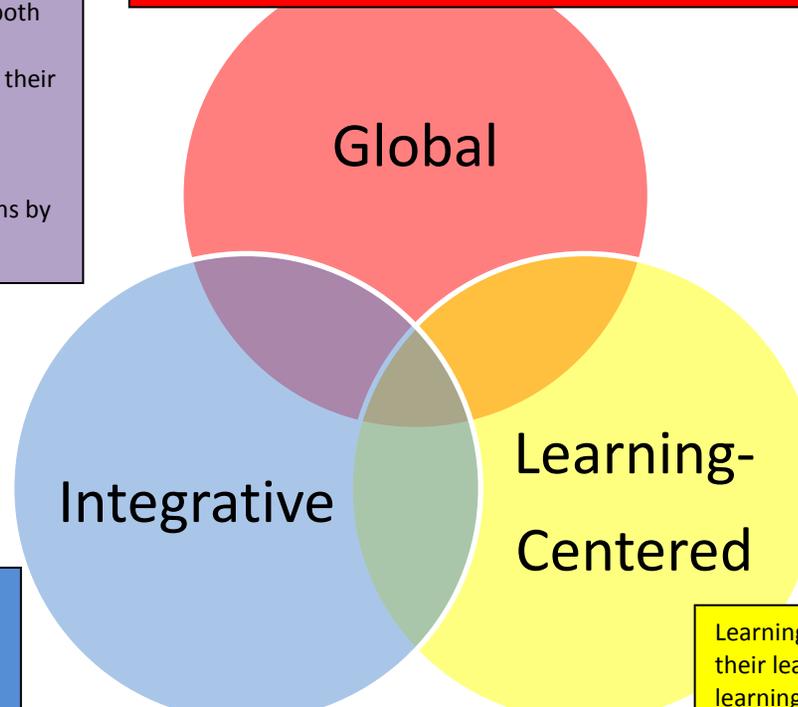
Integrative– signifies a purposeful inclusion of multiple "ways of knowing" (perspectives, habits of mind, disciplinary theories and methodologies) to help students to:
- engage with complex issues and ideas from multiple perspectives;
- understand that different groups define, frame, analyze, and solve problems in multiple ways; and
- analyze, evaluate, and reflect upon information from multiple frames of reference in order to act as globally responsible citizens.

Learning-centered and Integrative connection:
- Both concepts suggest a focus on ideas and theories that transcend a single content or disciplinary area.
- Both concepts suggest that problems and their solutions are complex and cannot be understood through facts in isolation or a single way of knowing.
- Both concepts call for faculty to be both learning facilitators and content experts

Learning-centered – signifies a focus on students and their learning, rather than faculty and content. A learning-centered curriculum is one that:
- employs student-centered pedagogies and techniques, including active, experiential, problem-based, and/or inquiry-based techniques;
- connects the content and discussion to students' lives in relevant ways;
- uses content and theories as a way for students to develop students' knowledge, attitudes, and skills in transferrable ways; and
- is led by faculty who are both learning facilitators and contents experts in their fields.