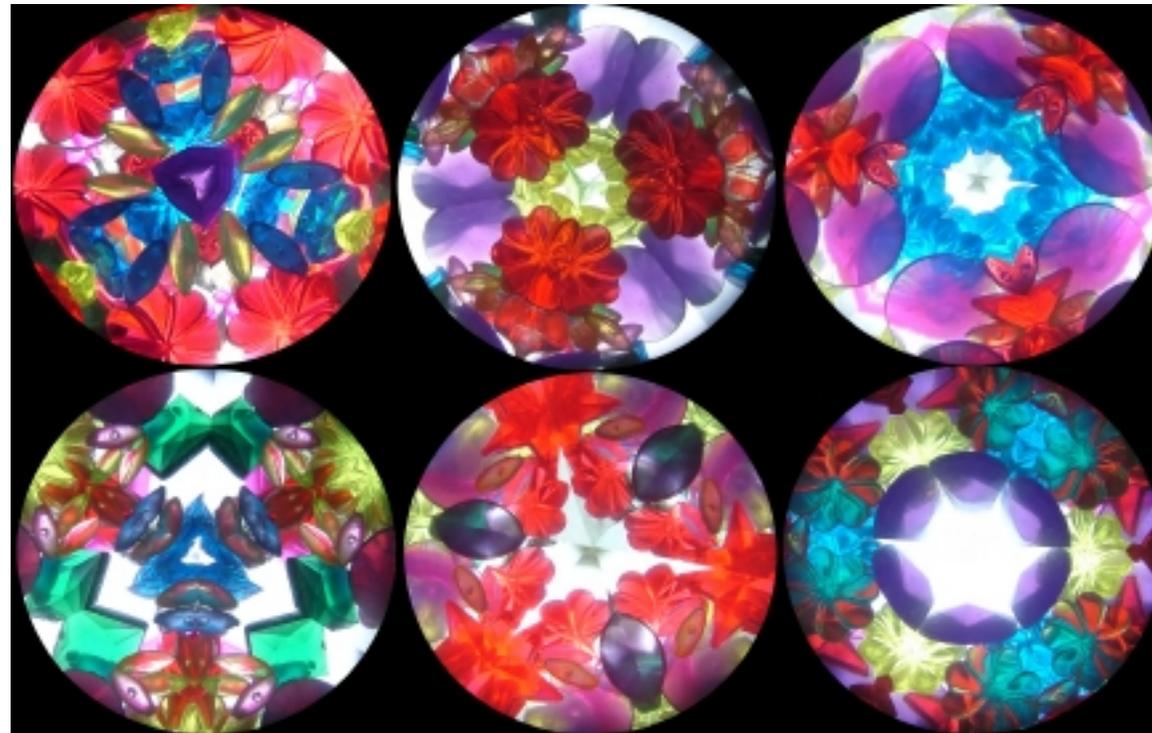


INTERDISCIPLINARY ACADEMIC THINKING

Report from Vision 2020 Working Group

Belmont University

Fall 2016



Our Team

Scott Weston, College of Pharmacy & Bonnie Smith Whitehouse, Department
of English (Co-Facilitators)

Mimi Barnard, Office of Interdisciplinary & Global Studies

David Gal-Chis, Senior (Honors)

Janine Krueger, College of Pharmacy

Hannah Montgomery, Library & Information Technology Services

Nick Ragsdale, College of Science & Mathematics

Jason Rogers, University Counsel

Jonathan Thorndike, Honors

Katie Wray, Occupational Therapy

Our Charge & Objectives

- To research and explore current interdisciplinary academic thinking across campus
- To identify the essential elements of, and possible barriers to, effective interdisciplinary academic thinking. What non-traditional, cross-disciplinary collaborations that address changing world needs might we explore? Are there niche markets we should explore?
- To provide a recommendation to Senior Leadership that includes steps required over the next six months to develop academic programs that cross disciplinary lines and find innovative intersections that address changing world needs and to focus on possible niche programs that fit with Belmont's differentiation strategy.

The Kaleidoscope as a Metaphor for Effective Interdisciplinary Academic Thinking



The Kaleidoscope: A Metaphor for Interdisciplinary Academic Thinking

- Interdisciplinary thinking reflects our daily life and work, which is rarely stratified by discipline or area of study.
- Interdisciplinary academic thinking requires mind open to surprises; it fosters creativity, adaptability, & collaboration.
- Interdisciplinary work often centers itself on real-world problems (Friedman, Taylor).



Effective Interdisciplinary Academic Thinking

The 21st century needs thinkers & workers who have...

- an increase in understanding, retention, and application of general concepts.
- a better overall comprehension of global interdependencies, along with the development of multiple perspectives, points of view, and values.
- an increase in the ability to make decisions, think critically and creatively, and synthesize knowledge beyond the disciplines.
- the ability to identify, assess, and transfer significant information needed for solving novel problems.
- the promotion of cooperative learning, a better attitude toward oneself as a learner and as a meaningful member of a community.
- increased motivation.
 - --Mathison and Freeman, 1997



Sir Ken Robinson on Cultivating Creativity Through Interdisciplinary Collaboration

(Disclaimer: *Cliffs Notes* version!)

1. In the past 200 years, the world has changed dramatically, but the way we educate has not.
2. We should not assume that we can solve new problems using old educational models.
3. We need to find ways to create and cultivate what Robinson calls “an aesthetic experience - one in which your senses are operating at their peak, when you're present in the current moment, when you're resonating with the excitement of this thing that you're experiencing, when you're fully alive.”



**Voices of Interdisciplinary Academic Thinking:
Paul Kalanithi, *When Breath Becomes Air***

“On campus [as a student at Stanford—I sought] a deeper understanding of the life of the mind. I studied literature and philosophy to understand what makes life meaningful, studied neuroscience and worked in an fMRI lab to understand how the brain could give rise to an organism capable of finding meaning in the world...” (35)

(note: Dr. Kalanithi was a neurosurgeon with a BA in Human Biology, an MA in English Literature, an MPhil in philosophy and history of science, and postdoctoral work in neuroscience.)

Voices of Interdisciplinary Academic Thinking: Current Belmont Student David Gal-Chis

“I always knew I’d create my own interdisciplinary major. But only recently have I learned that doing so helped me see the new worlds are open to me with regard to Artificial Intelligence and Computer Science. Interdisciplinary study has freed me. It has freed me to think bigger and dream bigger. Studying in interdisciplinary ways has made me adaptable. Being an interdisciplinary thinker means I am prepared for the reality of an evolving job market.”

David Gal-Chis, C’17 (Biomedical Engineering & Honors)

Voices of Interdisciplinary Academic Thinking: Belmont Alumnus Evan Vaughn

“I always appreciated when my Belmont professors would prime us at the beginning of a class that the work we would be doing within a discipline was inherently going to be intersectional and interdisciplinary. I appreciated when professors understood that students were coming from places where they were being taught in silos, and that what we were going to learn at Belmont would help us break those silos down.”

Evan Vaughn, C'14 (Management, Honors)

Voices of Interdisciplinary Academic Thinking: Alumna Hannah Montgomery

As an alumna of the Belmont University Honors Program, I can say that having an interdisciplinary education definitively prepared me for life outside of college. While at Belmont, I learned to think synergistically about problems, which helped me immensely in my non-Honors classes and in work. For example, I was able to bring what I was learning about the Medieval and Early Modern Worlds and combine it with my music history studies to gain a deeper understanding of medieval chant functions and the importance placed on composers and music during the Baroque era.

I learned that Gothic cathedrals had extraordinarily steep ceilings because of St. Augustine's *The City of God*; St. Augustine discussed ways of being closer to God, and thus cathedrals' tall ceilings were meant to bring man and the city of God closer together. Studying the ties between early Christian philosophy and Gothic architecture really honed my ability to think critically about seemingly unrelated causes and effects elsewhere. I had to learn how to effectively speak in public as I defended my assigned stance as an Anabaptist during Dr. Joseph Byrne's Reformation Debate.

Participating in balcony views through LEAD honed my ability to approach difficult situations logically and analytically. Reading Holocaust survivor Victor Frankl's *Man's Search for Meaning* while at the same time discussing readings from Harvard Business School books on what makes teams work (a series of books I still have and refer to now) put things in perspective and taught me to how to adapt when things do not go according to plan. We learned how to prioritize and problem-solve utilizing principles from *The 7 Habits of Highly Effective People* as we worked with our non-profit partners on projects which would enhance their sustainability.

After graduation, I had the soft skills necessary for administrative work because LEAD students were tasked with reaching out to local non-profits and learning how to work with leaders. I saw Belmont's dedication to service exemplified as I learned how to be a servant leader and citizen; we learned that it is difficult to be a good leader or citizen without learning to be a servant first. I still reflect to this day on what I learned in the Honors Program and I am grateful that I was shaped in college by this stellar interdisciplinary education.



Hannah Montgomery, C '11 (Classical Piano and Honors)

Voices of Interdisciplinary Academic Thinking: Belmont Faculty in The Collaborative for Collegiality

The Collaborative for Collegiality is a group of faculty members from Education, Chemistry, Mathematics, Biology, and English who have collaborated together for 4 years on grants, publications, peer review of teaching, and workshops for teachers in the region.

“Our collaboration has provided me with new and different perspectives that help me better identify the different lenses that students bring to class and especially identify assumptions about student knowledge that I may be making. I am able to make my teaching more student-centered by being able to reach more types of students. And, it just makes it more fun!”

*Dr. Lauren Lunsford, Associate Dean of CLASS and Professor of
Education*

“I would have never known about ‘thinking routines’ were it not for our ongoing interdisciplinary faculty collaboration. These routines get students more deeply engaged with the content as they explore ideas and open themselves up to other disciplinary perspectives.”

Dr. Darlene Panvini, Professor of Biology

Alphabetical List of Interdisciplinary Efforts at Belmont

- African American Studies Efforts in Various Areas
- Asian Studies
- BELL Core (FYS, LLC, JCS)
- Biochemistry & Molecular Biology
- Classics Major and Minor
- Collaboration on various grants
- Corporate Communication
- Design Communication
- Digital Studies Efforts in Various Areas
- Environmental Science
- Exercise Science
- Faith & Culture Symposium
- Faith & Social Justice
- Global Leadership
- Humanities Symposium
- Intellectual History Symposium
- Interdisciplinary Ethics Minor
- Leadership (Honors, Business, GLS, etc.)
- Legal Studies
- MBA/DMP (in prep)
- MBA/JD (in prep)
- Media Studies
- Music Business/COBA Collaborations
- Music Therapy
- Neuroscience
- PharmD/MBA
- PharmD/MEd (in prep)
- Publishing
- Religion & the Arts
- Social Entrepreneurship
- Summer Sciences Health Camp
- Women/Gender Studies Efforts in Various Areas
- Writing Center
- Writing Fellows Program

Barriers (Real or Perceived) to Fostering Interdisciplinary Academic Thinking at Belmont

- Current practices demonstrating sustainability of departments/units don't stimulate interdisciplinary academic thinking.
- Creating niche programs in an uncertain job market feels irresponsible.
- We don't always talk to one another about our efforts, so duplication occurs without conversation.
- Our current process for incubating interdisciplinary academic ideas is limited, time-consuming, and inefficient.

Overcoming these Barriers to Better Foster Interdisciplinary Academic Thinking

We propose:

- Inspiring and encouraging interdisciplinary academic thinking
- Acknowledging the messiness of teaching
- Establishing a process for incubating new interdisciplinary ideas
- Launching an award for excellence in interdisciplinary academic thinking
- Creating a web presence (or a home page) for all ID efforts at Belmont.

We Propose: A Process to Cultivate Interdisciplinary Academic Thinking at Belmont

Step 1: Invite a Call for Proposals for New Interdisciplinary Initiatives

- This CFP is more than an email; at an event initiated by ISGE, this CFP will provide a time, space, and inspiration for faculty members to respond with their ideas.

Step 2: Review Proposals through an Interdisciplinary Advisory Council

- Proposed ideas will be reviewed by an advisory council made up of representatives from Provost's Council, Curriculum & Catalog, Career Service & Professional Development. Subject matter experts, students, and additional market research professionals will be brought in where appropriate.

Step 3: Submit new interdisciplinary initiatives through our already established Curriculum & Catalog processes

Further Suggestions for Processes that Cultivate Interdisciplinary Academic Thinking at Belmont

- In the future, the Interdisciplinary Advisory Council will have submission forms, a timeline, and rolling deadlines that coordinate with Curriculum & Catalog deadlines.
- Our team suggests that summer might work well as a potential time for incubation and piloting of new interdisciplinary ideas. We encourage a conversation about the potential to adapt the summer study abroad tuition model to encourage the incubation of new interdisciplinary ideas.

We propose: Reframing & Rebranding BELL Core Learning Communities as *Interdisciplinary Seminars*

- The first moment of interdisciplinary academic thinking all undergraduates experience is looking at the Table of Contents in *Ways of Knowing*, the FYS Common Reader.
- The first interdisciplinary course experience all our undergraduates have is what we currently call the Learning Community.
- Yet, NSSE data reveals a students have a lack of understanding about the interdisciplinary nature of the LC experience.
- Rebranding the Learning Communities as Interdisciplinary Seminars reflects the interdisciplinary collaborations that are already happening and reinforces the interdisciplinary academic thinking that is integral to the BELL Core.

We propose: A Reinvigorated Campus Conversation about *Literacy Across the University*

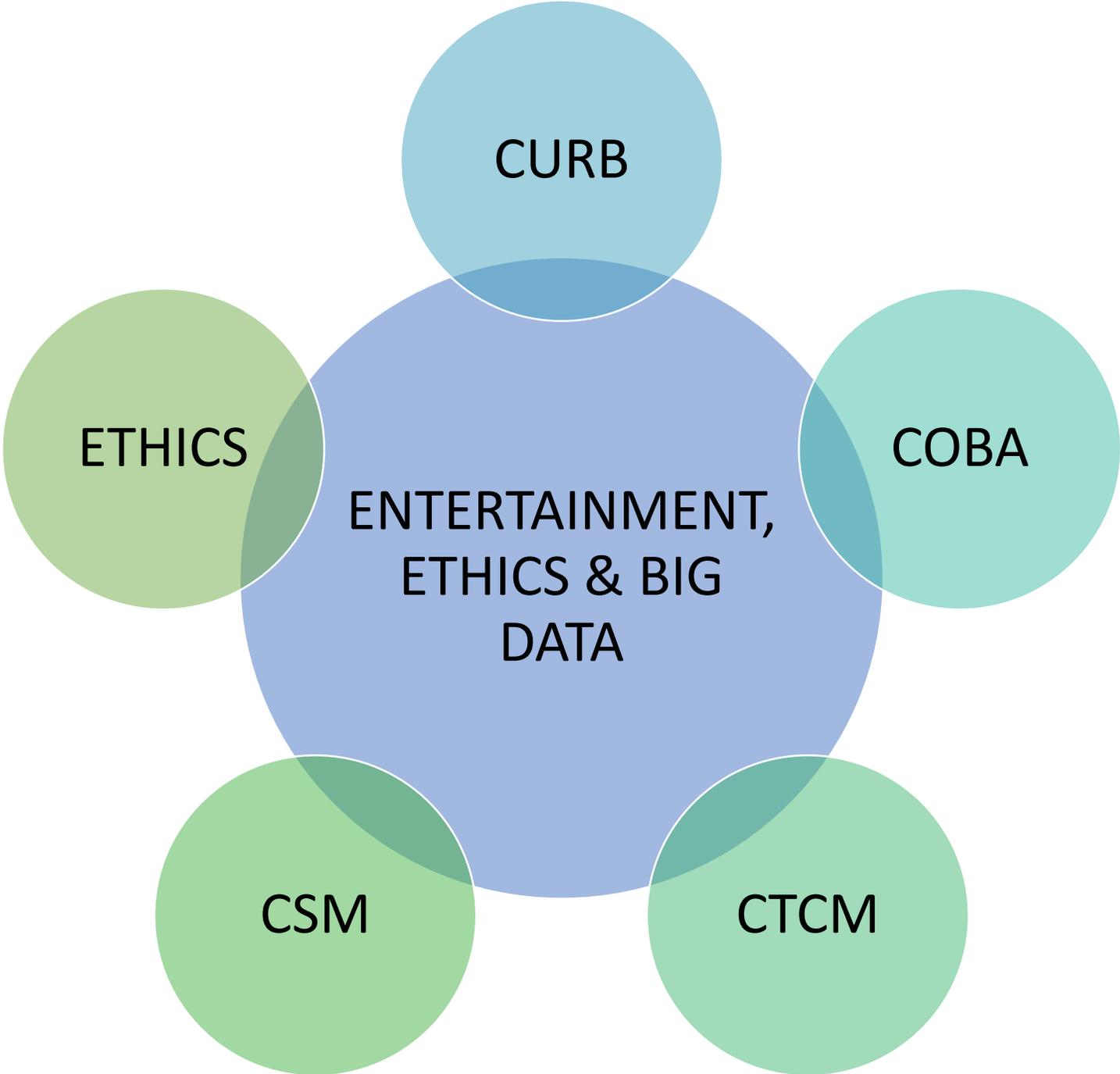
- Reading, writing, speaking and listening—the four modes of literacy—mean different things in the digital age.
- Literacy is inherently interdisciplinary.
- All disciplines need to be talking about how literacy works in their field as modes of communication transform the way we think and know.
- All disciplines need to be thinking about how their mission intersects with the mission of Belmont, with literacy, and with responsible, ethical citizenship in the digital age.

We propose: An Array of Possible Future Interdisciplinary Collaborations and Efforts

Disclaimer: Some of these ideas are more detailed than others; this list is not exhaustive and each is only meant to plant a seed for future conversation.

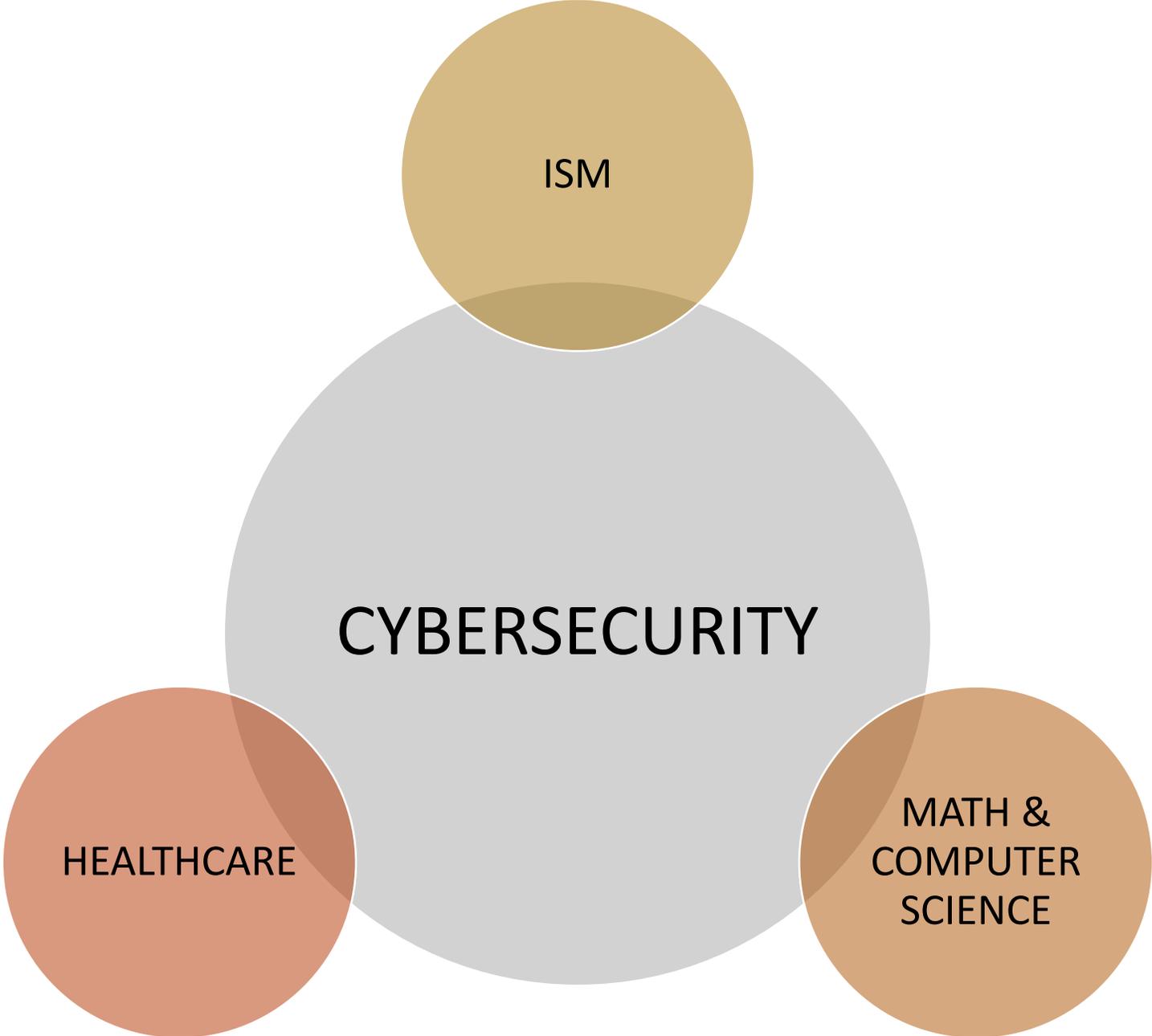
For each potential effort, we have included the following information:

1. A diagram illustrating the interdisciplinary overlaps.
2. Why this now? How might this interdisciplinary effort help move Belmont forward?
3. What outcomes for students, especially regarding employment, can be expected?
4. What is the added value for students, university, and the community?



Entertainment, Ethics & Big Data

- Big Data, the practice of gathering large data sets to reveal and capitalize on patterns of human behavior, is being used more and more in the areas of marketing and entertainment.
- This interdisciplinary area seems ripe for development and innovation. We consider it an area in which Belmont might get “ahead of the curve” by offering an interdisciplinary program that encourages ethical use of big data.
- Given our mission and our already excellent fields in entertainment, Belmont is uniquely poised to tackle ethical issues at the intersections of these practices.



ISM

CYBERSECURITY

HEALTHCARE

MATH &
COMPUTER
SCIENCE

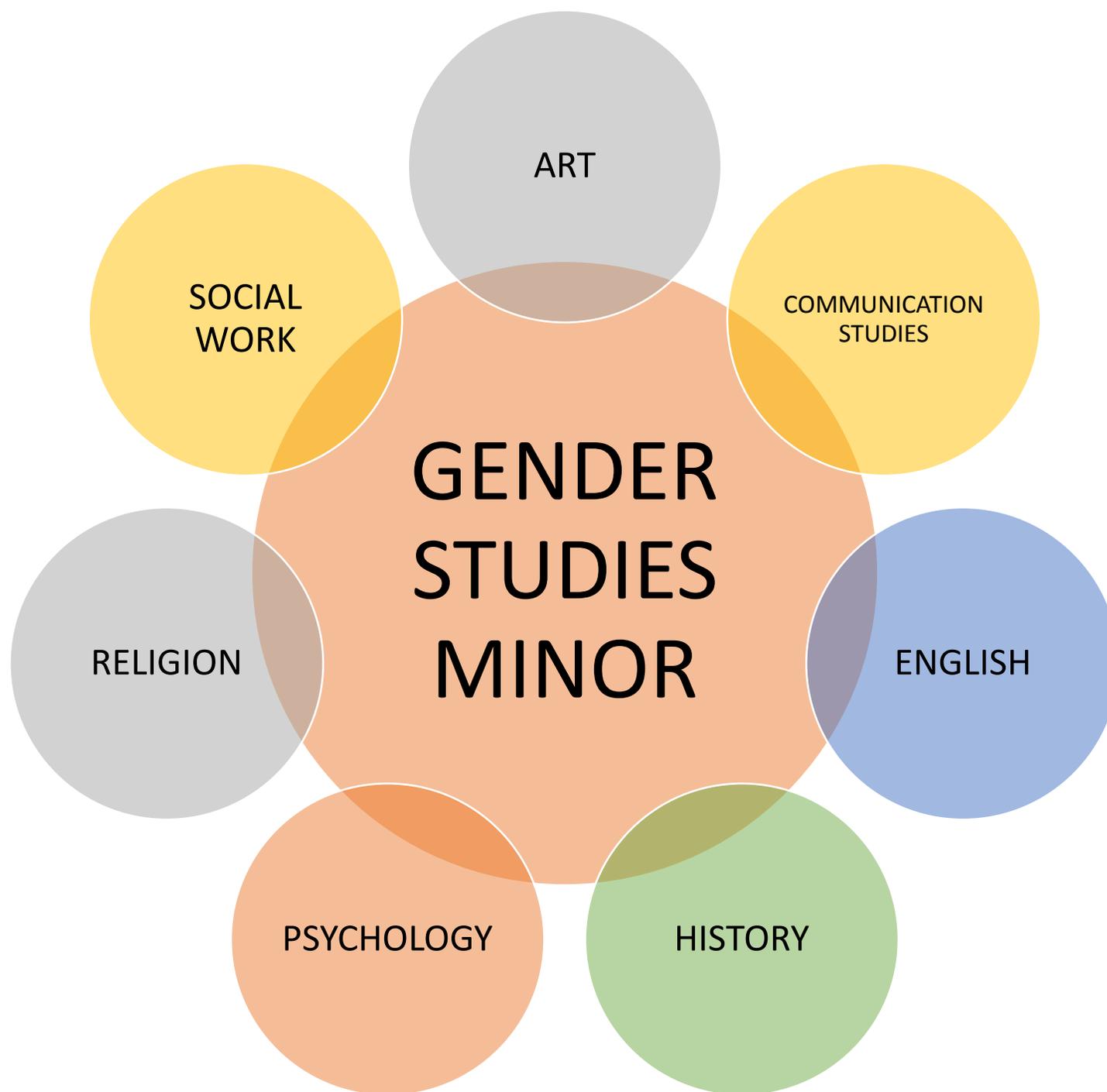
Cybersecurity

- Data scandals, hacking, and data security are concerns in every arena and field; everyone wants and needs their data to be secure.
- There's a direct route to employment in the field of cybersecurity.
- We imagine possible partnerships with HCA, Healthways, etc.
- We suggest developing a market study for a M.A. program as well; the Cool Springs campus might be a good venue.



Digital Humanities

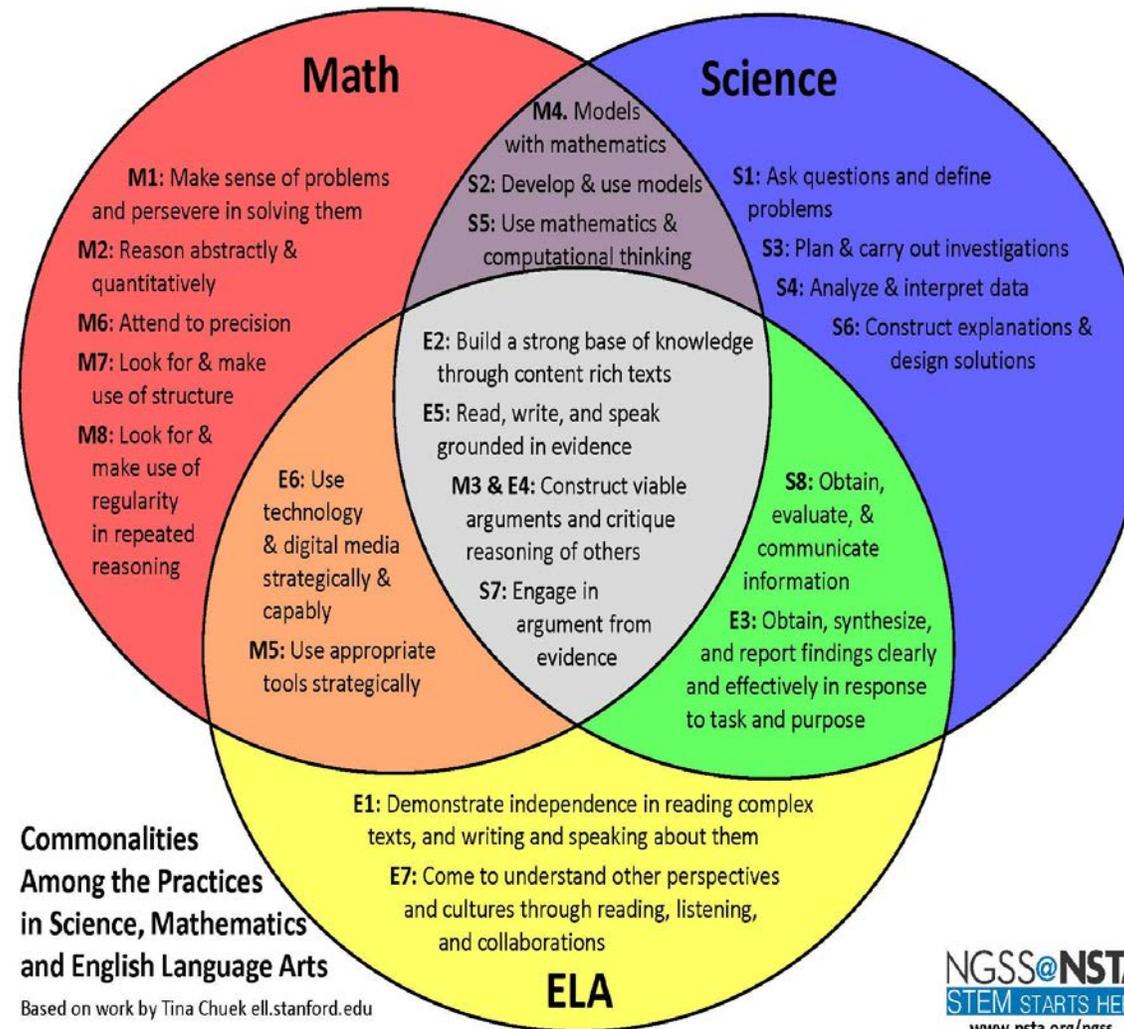
- DH is a new frontier for careers involving informational (business, library sciences, humanities, computer science).
- Media Studies, English, CTCM are currently including DH components in existing courses.
- DH develops skills to advance twenty-first century careers in education, archival work, media studies, librarianship, journalism, publishing, and health records.
- Those who are proficient in DH exhibit skills in digital curation, writing, content strategy, and collaboration.
- Digital research and media presentation skills include text mining, topic modeling, data visualization, and geo-mapping.
- DH models collaboration with scholars, researchers, and public history professionals exploring innovative and effective ways to advance teaching and learning in the humanities and social sciences
- Note: We had 4 very well-attended student sessions on Digital Humanities this fall; a number of students were recognized as colloquium scholars.



Gender Studies Minor

- Gender Studies connects personal empowerment with civic responsibility. In an increasingly complex world, GS provides students with a cultural awareness that is necessary to their compassionate and equitable transformation of the world.
- Disciplines currently offering courses in gender: Art, Communication Studies, English, History, Psychology, Religion, Sociology, and Social Work
- Given Belmont's fairly unique position as a Christian-centered, comprehensive university in the South, we believe we can offer a meaningful perspective on studying gender as it relates to religion, the fine arts, and our local/national/global history.
- A GS minor strengthens Belmont's focus on social transformation and social justice, providing opportunities to study and understand gender in an active way, through service learning, internships, study abroad, and more.
- A GS minor enhances the qualifications of job applicants in the fields of healthcare, management, public advocacy, government, and education.

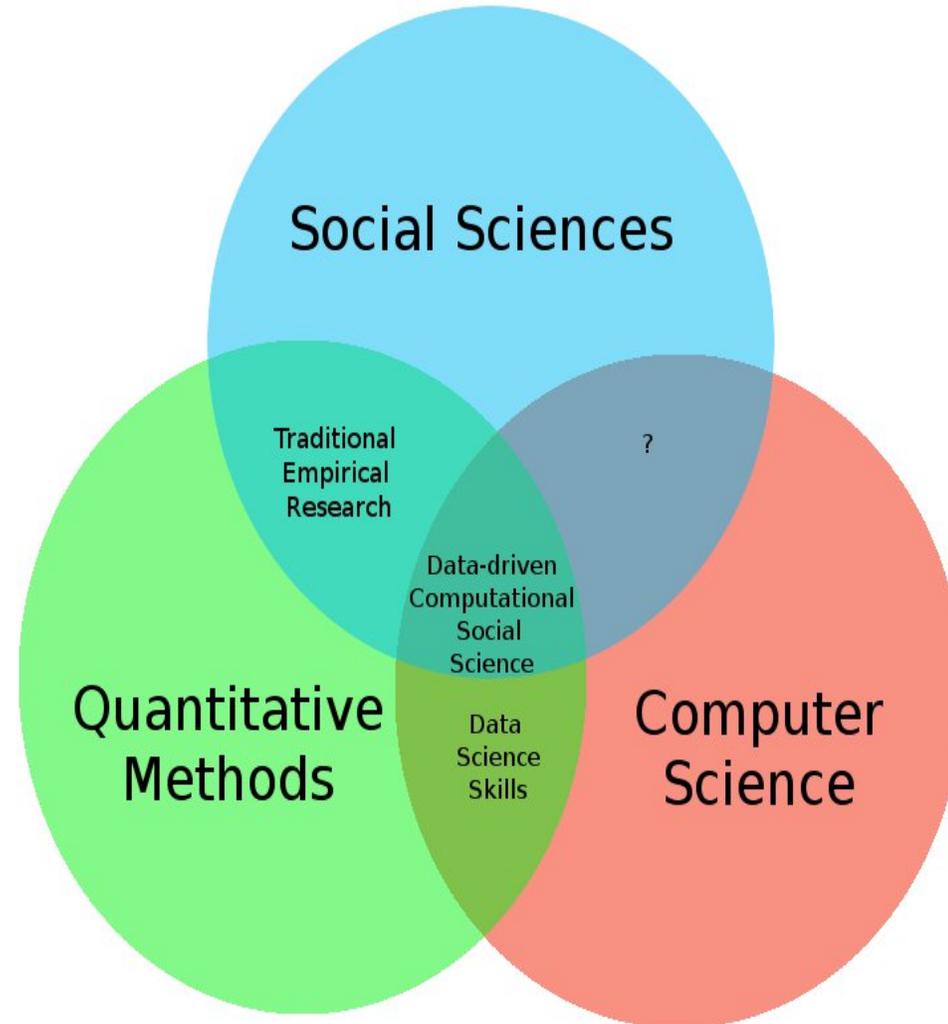
Science Communication



Science Communication

- Increased need of trained individuals that can disseminate accurate science, technology and health information
- Has developed into its own profession
- Educational opportunities are limited in the United States
 - Three graduate programs exist
 - No undergraduate programs exist
- Faster than average position growth
 - 5,300 additional jobs by 2024 (U.S. Dept. of Labor)
- Current BU course offerings
 - provide most of the needed curriculum
 - Could be offered online to provide some of the curriculum

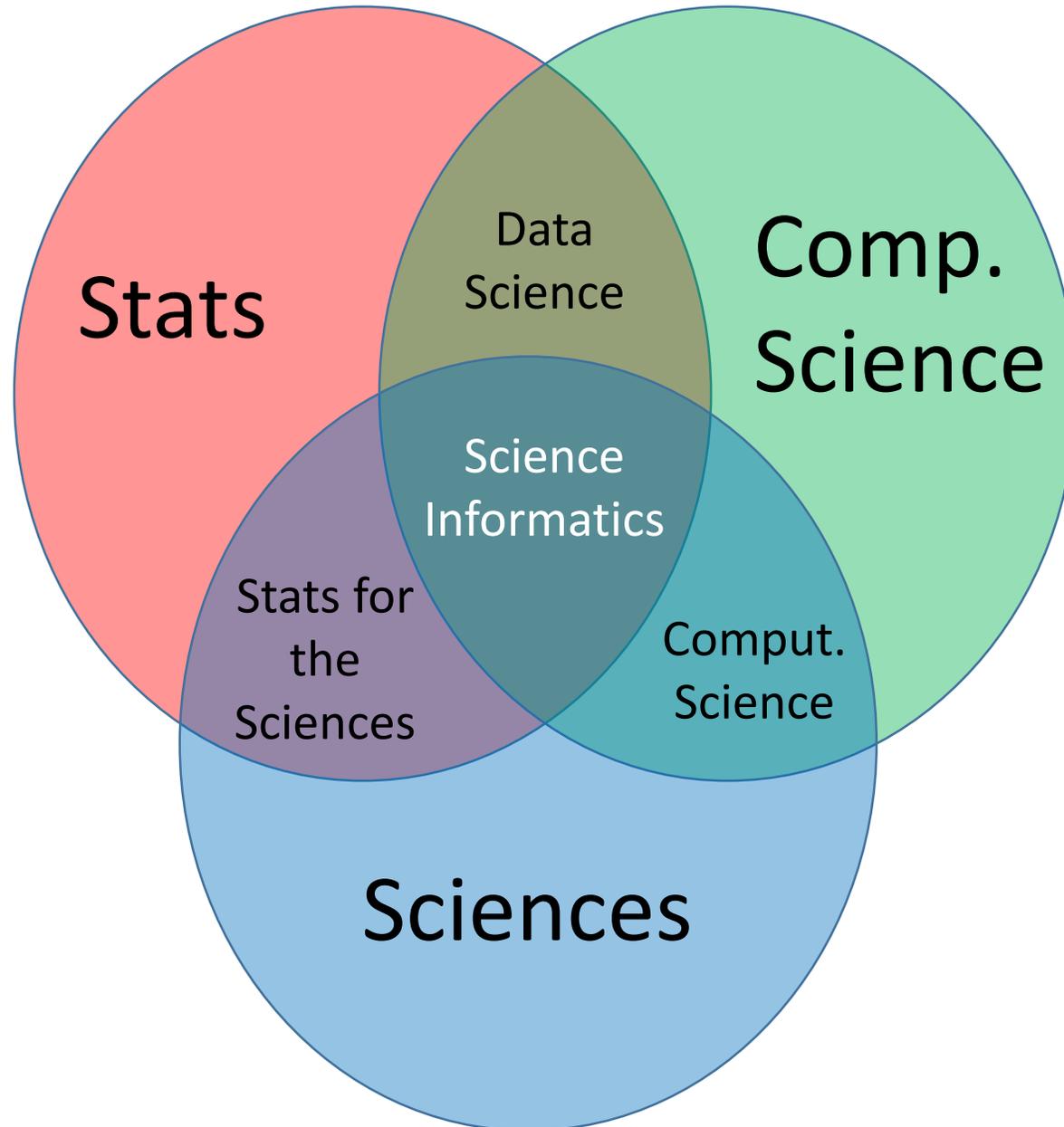
Math & Computational Economics



Mathematical & Computational Economics

- Companies are increasingly faced with unpredictable worldwide markets, expanding world markets, political and environmental uncertainty
- Economic and financial experts are challenged with this increased complexity while attempting to predict economic and financial trends and outcomes
- Decision making can be enhanced with the utilization of non-traditional mathematical and computational models
- Direct route to employment with many BS entry level positions
 - i.e. T Rowe Price, Charles Schwab, Cisco
- Increased acceptance into graduate programs in economics and finance due to higher mathematical and computer science skills
- Faster than average position growth
 - Additional 32,000 jobs by the end of 2024 (U.S. Dept. of Labor)
- Current BU course offerings provide most of the needed curriculum
- Can be expanded to incorporate more of the Social Science disciplines

Science Informatics



Science Informatics

- The world is data rich and requires the intersection of computer science, mathematics, engineering, statistics and science disciplines to:
 - Acquire, organize and create novel utilization of new and existing data
- Bioinformatics, Chemoinformatics and Psychoinformatics range from established to emerging fields of study and employment
 - Bachelors & Graduate programs exist for both Bioinformatics and Chemoinformatics
 - Online masters programs exist
- Faster than average position growth
 - Additional 3000 jobs by 2024 (U.S. Dept. of Labor)
- Current BU course offerings provide some of the needed curriculum
- Current infrastructure will allow for incubation of these majors

Honors:

We see potential to revive/reorganize leadership* as an interdisciplinary initiative.

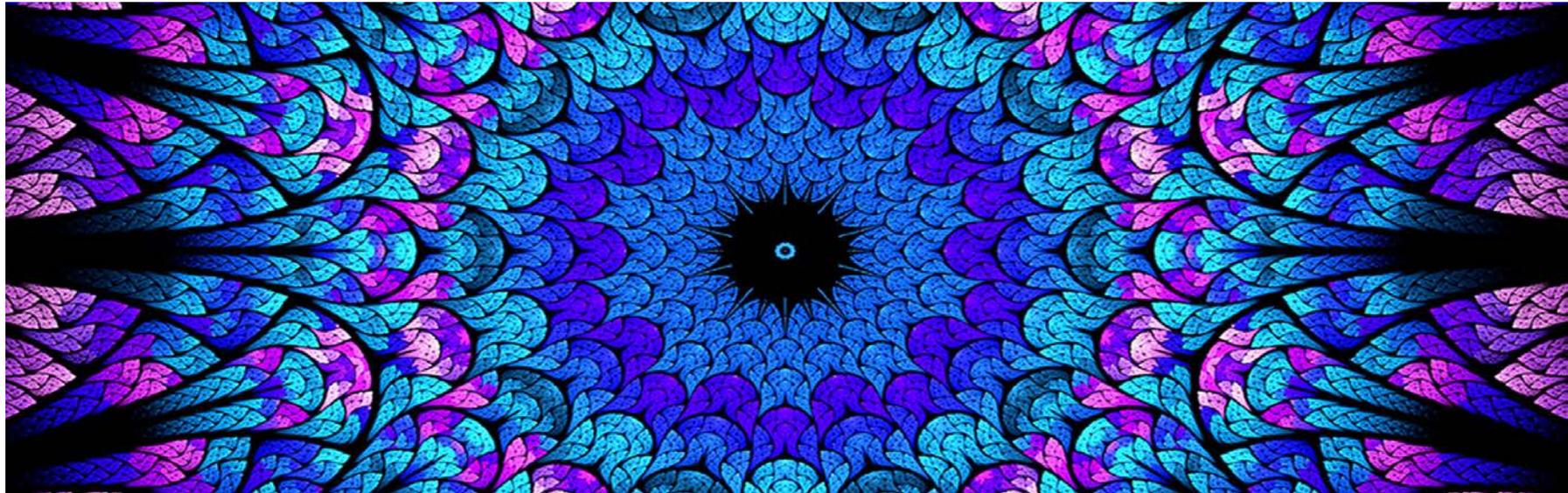
- LEAD curriculum currently exists as 13-credit “minor” in Honors
- Leadership reorganized as Interdisciplinary Program drawing from:
 - Global Leadership Studies Program (ISGE)
 - College of Business Administration: SET courses, Econ, Marketing
 - Political Science: International Relations, Government
 - University Ministries: service, mission, and community outreach
 - Office of Service Learning (Tim Stewart)
 - Internships with local non-profits, businesses, or community centers
- *note: Why do we talk of “leadership” instead of “citizenship?” A question our team pondered that might provide a seed for future conversation...

To recap, in response to our charge, we propose the following recommendations over the next six months:

- ❑ Form an Interdisciplinary Advisory Council as first-stop for new initiatives.
- ❑ Institute a new campus-wide award for Interdisciplinary Academic Thinking/Collaborations.
- ❑ Create a webpage and web presence for all ID efforts at Belmont.
- ❑ Rebrand/Reframe BELL Core Learning Communities as *Interdisciplinary Seminars*.
- ❑ Reinvigorate campus conversations about literacy in the twenty-first century across all disciplinary areas.
- ❑ Consider Honors as one possible site (but not the only site) for reviving leadership (or citizenship) as an interdisciplinary academic effort.

Thank you!

We appreciate this process, which in itself has fostered interdisciplinary collaboration and new relationships. We are excited about the seeds this working group may plant, and we are eager to continue this conversation!



Selected Works Cited & Consulted

Friedman, Thomas. *The World is Flat*. New York: Farrar Straus

Giroux, 2005.

Kalanithi, Paul. *When Breath Becomes Air*. New York: Random House, 2016.

Mathison, Sandra and Melissa Freeman. “The Logic of Interdisciplinary Studies.” Chicago: American Educational Research Association, 1997.

Robinson, Sir Ken. “Changing Education Paradigms.” TED.com. Web. October 2010.

Taylor, Mark. *Crisis on Campus: A Bold Plan for Reforming Our Colleges and Universities*. New York: Knopf, 2010.

U.S. Bureau of Labor Statistics Data. <http://www.bls.gov/>