

WHITE PAPER
CENTER FOR INTEGRATIVE STUDIES
2015-08-17
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1. Introduction:

The purpose of the Center for Integrative Studies is to provide a home and resources for students, faculty, staff and members of the community to pursue scholarship and teaching concerning complex problems we humans face. Essentially all such problems require the involvement of two or more disciplines to develop comprehensive understanding or to propose effective solutions. Key to the development of comprehensive understanding and the creation of effective solutions is integration of knowledge, concepts, theories, perspectives, practices and methods. Integration is a high order set of skills that involves the well-ordered practice of certain habits of mind and attitude, the learning and practice of which would do much to enhance student and professional success in and outside our institution. The Center will be a place where students are taught the art and science of integration through work on projects, topical seminars, workshops and courses. It will be a place where faculty share ideas, practices and experience with respect to effectively teaching integration of knowledge in seminars, workshops, team teaching, collaborative research or creative projects and less formal interactions in a community setting.

Essentially all problems that we individually and collectively face are complex in nature, requiring integration of knowledge, ideas, concepts, perspectives, practices and methods. A few examples of broad topics that may be pursued by students and scholars, in teaching, learning and research assisted by the proposed Center are:

- Building environmentally and economically sustainable societies
- Human rights and dignity issues
- Peace studies
- Feeding the world
- Improving global human health and well being
- Ethics, religion and society
- Area studies
- Urban and metropolitan studies
- Education in a changing world
- Art and society
- Science, Technology and Society
- Community development and planning
- Community issues

The work of the center may be accomplished by:

- Providing courses with a focus on integration of disciplines or their insights for general education credit.
- Providing an institutional home for the expanding IDS program.
- Inviting speakers on interdisciplinary topics.
- Developing and providing topical seminars of interest that involve integrative knowledge.
- Providing grants, expertise, other resources and opportunities for students and faculty, together, to work on scholarship (projects) with integrative themes.

- Providing a central location for bringing together student and faculty accomplishments, papers and other products for projects of an integrative nature. Such an archive would inspire and inform future work.
- Establishing a broad and committed learning community of students and scholars from different departments and colleges.
- Developing an incentive structure to encourage student, faculty and staff involvement in the Center (scholarship contests, designated credit, etc.)
 - Suggesting successful, rigorous integrative projects receive credit for one or more general education requirements.
 - Suggesting an annual integrative project award, perhaps in conjunction with the Academic Showcase.
- Establishing a team of Lander faculty for the assessment of interdisciplinary/integrative projects for course embedded work, research, internships, service learning or other projects.
- Developing, distributing, making available or consulting on integrative learning and interdisciplinary project assessment tools (rubrics).

2. Benefits to the University:

There are many potential benefits to Lander University of the Center as envisioned in this white paper. Some of these are:

- The Center can become all or part of the new QEP which the University must develop as part of its reaccreditation effort (SACS COC).
- The Center will become of value for recruiting students to the University. This could become one of the unique elements of the university that may attract students who may otherwise not view it as an option. The major reasons for this are the expressed opportunities for collaborative research and creative projects, a recognizable learning community, the encouragement of independent learning guided by committed teachers and the uniqueness of the Center, the demonstration, by the existence and operation of the center, of the deep commitment of the faculty to advanced learning among Lander's students.
- The Center could provide active outreach to businesses and industries in the region, due to its interest in facilitating skills that are well valued by employers today and in its interest in research and other projects on problems of interest to businesses, industries, institutions and communities of our region.
- There may be external grants and other funds, depending upon the types and degree of support the Center receives from the University and community, which will support this endeavor which are not currently being sought by others at the university. For example, there are significant grant programs of the NSF related to interdisciplinary studies and research in the sciences.
- The University could well position itself as a leader in an actively growing segment of higher education, integrative or interdisciplinary education and research.

- The University already possesses a growing Interdisciplinary Studies Program (IDS) program, which can leverage the establishment of the Center. There is expected to be much synergism between the academic program and the Center.
- The Center and IDS program can also draw upon the support and students of the Honors College and, conversely strengthen the Honors College, especially among those students interested in developing their own programs of study.

3. Definition of Integrative Learning:

There is much in the literature concerning integrative learning. A definition of integrative learning that is typical and contains many of its essential elements in the one in the quote below.

‘Integrative learning is an understanding and a disposition that a student builds across the curriculum and co-curriculum, from making simple connections among ideas and experiences to synthesizing and transferring learning to new, complex situations within and beyond the campus.’ -- (Rhodes, 2010)

Some scholars separate the terms “integrative learning” and “interdisciplinary learning”, while others use them as synonyms (Brown Leonard, 2012). In this proposal, the two terms are used interchangeably and are largely to be considered synonymous. This is to be consistent with the usage of the Interdisciplinary Studies Program at Lander University. At Lander, interdisciplinary studies is the academic field in which students learn approaches and methods for integrating insights from two or more disciplines into a single field of study, body of knowledge or in the investigation of complex problems. At Lander, we follow the definition of Newell and Green (1982), as follows.

Interdisciplinary studies are “inquiries which critically draw upon two or more disciplines and which lead to an integration of disciplinary insights.”

This definition has been expanded and elaborated over the years by several authors. The key elements of the definition which are applied to Lander’s IDS Program and which are meant to apply to the activities of the Center are:

1. The academic disciplines are key and fundamental to successful integrative learning. It is disciplinary methods, approaches, knowledge, theories and insights that are used in integration, to development a more comprehensive understanding of a complex problem than what would be possible using only one discipline.
2. It is disciplinary insights that are integrated, in particular.
3. Critical thinking is essential. It is applied to each of the disciplines and to the development of the product(s) of integration.
4. Integrative learning, done well, involves metacognition, or thinking about thinking.

4. The Importance of Integrative Learning, Thinking and Problem Solving

The following paragraphs provide a discussion as to why integrative learning is an important and timely topic for higher education in general and Lander University in particular.

4.1. Most major problems in our society are complex.

The problems listed below (in no particular order) are complex and have no simple solutions. In fact, a full understanding of any one of these problems requires consideration of the contributions of several disciplines and different perspectives or even different or conflicting world views. Each reader is more than welcome to propose his or her own additions to this list, of which there are many.

- Developing a sustainable economy
- Peace in the Middle East, North Africa, Southeast Asia, Central and Eastern Europe, the Korean Peninsula or any region of conflict
- Terrorism (causes, conditions, solutions)
- Racial, cultural, religious, political or ideological conflict (causes, conditions, solutions)
- Unequal distribution of wealth and poverty
- Curing cancer, AIDS or any of a myriad of diseases
- Understanding and responding to global climate change
- Globalization of the world economy and culture(s)
- Global or regional loss in biodiversity (species extinctions, ecosystem disruption)
- Population issues (total population growth, variations in population age and sex distributions)
- Resource limitations (water, food, energy, land, material shortages)
- Effective governance of nations
- Community planning and development
- Urban (metropolitan) planning and design
- Crime, cheating, defection, exploitation of others (understanding of causes and development of solutions)
- Understanding life, the universe and everything (the new science)
- Mental health challenges (unhappiness, suicide, alienation, mental illness...)
- Health care, education and the provision of social services
- Domestic violence (causes, effects, solutions)
- How people learn and what should people learn
- Ethics and proper conduct
- Development, use of technology and its impact on humans, societies, economies, the environment
- Space exploration
- Effectively running a business or organization (like Lander University)
- Effective leadership
- Understanding creativity in the arts

The complexity of the world and of individual life has greatly increased over the last few decades, and that of the students will be more complex, still. Some scholars attribute a large part of this increased complexity to globalization, and that integrative learning is essential for success in this rapidly changing and diversifying world (Newell, 2010). Globalization includes development of a truly global economy in addition to advances in communication technologies that allow instant communications with people and organizations everywhere.

Of course, each of us, as individuals and families, face many complex problems that can benefit from the consideration of knowledge from several disciplines, approaches or perspectives. For example;

- How do I take care of my ageing, ailing parents or grandparents?
- How do I best raise my child(ren) to become (a) responsible, caring and competent adult(s)?
- What is the best school, college, university, major, area of study for me or my children?
- How may I maintain the work-life balance that I desire or need?
- How much is enough?
- What makes me and my family happy and fulfilled?
- How may I achieve this happiness/fulfillment?
- How may I start a career or advance in the career that I have?
- What is the best car to buy?
- In which neighborhood/community should I live?
- How may I help make my neighborhood, city, state, country or world better?
- Which church, synagogue, mosque, ashram, temple or coven shall I join, if any?
- When and where will I retire?
- What is my purpose in life (if any)?

Those individuals who are well able to integrate information, techniques, approaches, insights or other aspects of disciplines, schools of thought or world views will be best able to address the complex challenges of life in today's world. Thus, helping our students to do this well will undoubtedly help them with life in general, as well as in their future careers and academic work.

4.2. Effective citizenship requires an understanding of complexity and complex social and political challenges.

Effective participation in democracy requires citizens to become informed about a bewildering array of issues that affect all of us. If we, as citizens, lack advanced critical thinking skills and the ability to integrate knowledge and insights from several disciplines and points of view, we will fall victim to the loudest voice or most effective propaganda. All citizens, in order to be effective, require good b---hit detectors and the willingness to use them.

Examples of recent, controversial political issues which require a high degree of critical thinking and integration in order to have a passable understanding are:

- Global climate change
- Campaign reform (role of superpacs, pacs, money, lack of transparency)
- The NX Pipeline
- Nuclear energy
- Alternative energy technologies versus fossil fuels and/or nuclear energy
- Economic development and growth (policies, possibilities, incentives)
- Health care policies and issues (particularly with respect to the Affordable Care Act)
- Social Security solvency issues, or retirement issues in general
- Crime, law enforcement and justice
- Racial equity (institutional, law enforcement, economic, environmental)
- The definition of marriage and marriage rights. (Marriage duties and obligations are apparently quite absent from the political discussion.)
- The definition of a family
- The persistence and spread of poverty and its effects
- Increased rich-poor gap
- International trade (policies, benefits, costs, opportunities)
- The role of firearms in our society (rights, duties, regulation, effects, research)
- Illegal immigration (causes, effects, benefits, costs, solutions)
- End of life issues
- The limits of free speech
- Rights versus responsibilities (Almost no-one in our modern political discourse since President Kennedy speaks of the latter, while the former is emphasized by most.)
- Education policies (e.g., common core or not common core)
- The student debt crisis and access to higher education
- Labor policies (right to work versus the right to organize, minimum wage, working conditions)
- Environmental regulation and policies (effects of regulation on business, quality of life, health, etc.)
- Foreign policy with respect to nuclear proliferation (Iran, North Korea)
- Foreign policy with respect to the Middle East
- Foreign aid as an instrument of foreign policy
- Radical Islam and the spread of global terrorism
- Domestic terrorism
- Domestic violence (major issue in SC)
- How to pay for infrastructure repair/improvements (major issue in SC)
- What to do about the scourge of drugs and alcohol in this country (if anything)
- Technology and privacy issues (the web, surveillance, drones)

- Advanced military technologies (drones, cruise missiles, robots and warfare, intelligence)
- The role of religion and religious belief (or unbelief) in the USA

Students fully capable of critical thinking and integration are, presumably, much less likely to be convinced by half-truths, lies, or incomplete information. They will know how to ask penetrating questions and not be satisfied with shallow, emotional responses. Thus, they will be more informed in discussions, voting and other political activities.

4.3. Most significant discoveries today are at the boundaries of disciplines.

Most interesting scholarship and discoveries occur at the boundaries of disciplines (Small, 1999). This often leads to the development of new disciplines and interdisciplines. The following is a partial list of some of these newer disciplines and subdisciplines, all developed in the second half of the last century to this one.

- Biochemistry
- Bioethics
- Bioinformatics
- Biomimicry
- Cell Biology
- Earth Systems Science
- Cybernetics (an integrative science of computation applied to the science of mind and computers)
- Chaos (a branch of mathematics that explores systems of analytical equations that exhibit non-linearity and which are sensitive to initial conditions)
- Conflict Studies
- Women's or Feminist Studies (and other gender-related studies, including Men's Studies and Masculinity Studies, which I did not know actually exist, and which includes a scholarly article with the title, "Academic Viagra".)
- Systems analysis
- Biomechanics
- Medical sociology
- Social psychology
- Nanotechnology
- Robotics
- Victimology (yes, this has been proposed as a new discipline related to sociology)
- African-American Studies (many other ethnic or cultural group studies have also been considered as separate disciplines or interdisciplines)
- Asian Studies (many other area studies have also been considered as separate disciplines or interdisciplines)
- Graphic Design
- Creative Studies
- E-commerce/Internet Business (studies)
- Entrepreneurial (Studies or Issues)

- Aerospace Engineering
- Biostatistics
- Musicology

It does appear that this list favors science, and the biological sciences at that. This might, in part, have to do with the fact that the writer of this paper is a scientist and so is more familiar with developments in the sciences. It is also true that the biological sciences have made a bewildering variety and number of advances in the last two decades, and many of these advances will affect all of our daily lives.

The following is a list of very recent discoveries from the sciences, all of which required more than one discipline to accomplish. In many, if not most of the cases, rather large teams of researchers from different areas of specialty were involved. In others, the technologies and methods used were developed in other disciplines but applied for uses not envisaged by the technology developers.

- Discovery of the complex features on the surface of Pluto as a result of the New Horizons Mission.
- Discovery of the dwarf planet, Eris. There are now two plutoids (pluto-like objects with orbits beyond Neptune) known in our solar system.
- Discovering and removing organic tissue from a bone of *Tyrannosaurus rex*, a dinosaur that has been extinct for 65 million years. By the way, several new species of dinosaurs related to *Tyrannosaurus rex* have been discovered recently.
- Confirmation of the existence of dark matter has been made. Dark matter is that which makes up most of the matter on the universe and is so named because it is not directly visible to telescopes or other instruments. It was also so named because its nature has been unknown. Much of it is still unknown.
- Discovery of the Higgs Boson by CERN. The Higgs boson is also known as the God particle. It is the particle, according to the Standard Model of quantum mechanics, which gives matter the quality of mass. This discovery has done much to confirm the already most confirmed theory in all of science, quantum mechanics.
- Exoplanets, planets that orbit stars other than the sun, have been seen directly for the first time.
- The discovery of exoplanets similar to but a bit larger than the Earth. These are called super-Earths. Prior to that, only large planets, those on the order of the size of Jupiter, were discovered. Techniques for detection and confirmation of exoplanets are quite complex.
- The discovery of an Earth-like planet that orbits its star in the goldilock's zone. The goldilock's zone is the distance from a star that may allow liquid water to exist and thus might be suitable for the origin and evolution of life, as we know it.
- Cyborg research and development. There are several advancements in this area of fundamental research and technology development.
- Many advances in climate change science, including the discovery that glaciers in many regions of the world are melting quickly.

- The discovery of evidence of water on Mars, and, more recently, water vapor on the largest asteroid, Ceres. There is also the possibility of water ice on Mercury, as was recently discovered on our own moon. We are getting quite good at finding water.
- Mapping of the entire human genome. This was a truly amazing example of collaborative science on a large scale. An avalanche of discoveries has resulted from this and continues to this day.
- The discovery that we can obtain human stem cells using techniques that do not rely on embryonic stem cells. We can even get these from our skin.
- The growth of pieces of cerebral cortex and embryonic eyes from mouse embryonic stem cells.
- The success of gene therapy on eye patients in recent operations.
- The construction and operation of the world's largest solar-thermal plant in California. This facility makes use of some 300,000 mirrors that focus the sun's light on a tower.
- Building a eukaryotic chromosome from scratch. Eukaryotic organisms are those like you and me, all animals and plants.
- New forms of matter discovered in the large hadron collider (CERN), including an exotic form of matter called tetraquarks.
- Let's not forget all of the great new products that we now almost take for granted, I-phones, I-pads, I-pods, notebooks and so much more.

These discoveries are almost exclusively focused on the natural sciences and technology. Many others have been made that involve the human sciences (anthropology, psychology, brain science (an interdisciplinary), history, archaeology, economics, linguistics, and others.

4.4. Integrative problem solving skills are sought by employers today.

Very few, if any, surveys of employers specifically identify such skills by the precise term, "integrative problem solving skills." Rather, there is a desire that graduates be able to or develop the ability to solve complex problems (Anderson and Gants, 2015; Hart Research Associates, 2013; AMA, 2010), which, by their very nature, requires the ability to combine information from several disciplines, approaches, points of view or theories to develop integrative, comprehensive solutions. In research, especially research using interviews, there appears to be some confusion among critical skills, critical thinking skills, problem solving, complex problem solving, and integrative problem solving. Specific definitions of what is evaluated is often missing, and it seems that these terms are often used interchangeably. For example, "critical skills/problem solving" is a fairly common term in usage, a term which seems to lump a number of skills together, including what are called "analytical skills".

4.5. Most professions are integrative in nature.

Lander University has three undergraduate professional schools, Business Management, Education and Nursing. Each of these is highly interdisciplinary, or integrative, in

nature. Most professions, especially at their highest levels, require adequacy in a variety of academic disciplines and the ability to integrate them in solving the problems typical of the profession. In addition, professions require the integration not only of academic content but also technology know how, working habits, standard practices, teamwork skills, communication skills, habits of thought, professional ethical standards and other standards of practice, professional attitudes and much else besides. In fact, the integration of all of these aspects contributes to what might be called the culture of the profession. All of these facets are included in the education of students in these three profession schools at Lander University by means of classroom instruction, seminars, project based work, clinical work or laboratories, and internships or practicums. These aspects are integrated in other academic programs at Lander, and it is not the intent of this writer to leave any programs out that do these things well. These three were mentioned by way of example and due to the fact that these programs are organized as professional schools with full accreditation, rather than as departments or programs within departments, with or without accreditation.

Nevertheless, students seeking to pursue a profession, whatever it happens to be, will need to integrate all of these aspects of a full education in order to be successful. So deliberate, integrative learning is key to ultimate success.

4.6 Society needs leaders who can understand a variety of problems in their complexity and who can communicate with people of different disciplines and backgrounds.

The literature on leadership appears virtually inexhaustible, and a large amount of it deals with the challenges of leadership and complex problems, organizations or environments. In fact, there appears to be a major trend in the application of complexity theory or science to the study of leadership, to add to the psychological and sociological contributions (Marion and Uhl-Bien, 2001).

4.7 It appears to be the norm today that people will have more than one career.

The statement that most employees today will have many careers over the course of their lifetime is quite common, though finding the facts behind this statement is quite difficult and, from the perspective of this proposal, inconclusive. There appears to be a lack of a technical definition of what constitutes a career change. For example, younger people do appear to switch employers quite often, but the data does not distinguish between switching of careers or merely job changes within the same career (retail, manufacturing, etc.).

Despite the lack of consensus on this issue, it is certain that the nature of employment is rapidly changing, and that the student best prepared to take on new and complex challenges will likely be able to do well in identifying and taking advantage of opportunities for employment or career advancement.

A powerful way in which graduates could benefit from change is to integrate skills, knowledge and insights in such a way that they could be applied to new employment situations, or careers. This might include expanding opportunities with a current employer to achieve promotion and greater responsibility or obtaining new employment in another industry, corporation or career.

4.8 Most students seek relevance in what they learn to their lives, and life is messy and complex.

Common advice for faculty teaching in college today is to make courses and subject matter as relevant to students and their lives as is possible (Alford and Griffin, 2013; Caulkins and Seidler, 2011). There appear to be two major considerations with respect to the importance of relevance. The first is that students who view their courses as relevant to their lives are more likely to be engaged. The second factor is that students, in order to learn anything, must begin where they are, which is with the knowledge they currently possess (Roschelle, 1995). Relevance is that connection with what students currently know and what they are learning or attempting to learn.

Human lives are messy and complex, and many life decisions require the review and integration of a wide variety of factors or types of information taken from different perspectives. Such complex decision making skills are developed over a lifetime, but can be greatly enhanced by practices and habits of mind learned in the context of higher education.

4.9 Integration ties an undergraduate education together, especially general education.

“The function of education is to create human beings who are integrated and therefore intelligent....Intelligence is the capacity to perceive the essential, the what is; and to awaken this capacity, in oneself and in others, is education.....Without an integrated understanding of life, our individual and collective problems will only deepen and extend. The purpose of education is not to produce mere scholars, technicians and job seekers, but integrated men and women who are free from fear; for only between such human beings can there be enduring peace.” (Krishnamurti, 1953)

The literature on integrative learning and general education in higher education is both extensive and substantive. A quick search of that topic yielded 415,000 references on GOOGLE, many of these including white papers and other documents of colleges and universities concerned with the issue. Individual institutions have brought to bear a wide variety of methods and structures to aid in this integrated learning. These include common core educational experiences for freshmen and other students of an integrated nature, integrative seminars, general education curriculums with integrated themes, learning communities of different sorts, and others. There is no doubt from this literature that the topic of integrative learning in general education and between general education and professional education (or education within majors) is a very important one. This has been an issue of importance in higher education at least since the 1980's (Stark and

Lowther, 1988). The major purpose of the Center is to provide this benefit to our students.

5 Goals for the Center:

The following are major goals for the Center for Integrative Learning at Lander University.

- Establish a university-wide learning community that provides teaching and scholarship support to students, faculty and staff in integrative learning, scholarship and teaching.
- Inspire and foster creativity and innovation across the University in integrative teaching, learning and scholarship.
- Increase the awareness of University faculty, leadership, staff, students and the community at large of the importance and potential of integrative learning.
- Provide a clearinghouse for integrative scholarship at the University, whether pursued by faculty, students, or collaboration among faculty and students, thus inspiring others in their own or collaborative work.
- Teach students how to learn, think and perform scholarship across multiple disciplines and to integrate what they learn into a more comprehensive understanding.
- Teach students skills that are essential for integrative learning, such as problem solving for complex problems, which will greatly assist them in their personal and professional lives.

5.1 The effect of the Center on the mission of Lander University.

The salient paragraph of Lander University's Mission Statement provides essentially a definition of effective integrative learning (see bold text), broadly applied:

“The undergraduate programs provide opportunities for students to achieve competence in a major discipline and to explore a broad core curriculum designed to assist them in developing the ability **(1) to gather and critically analyze information from a variety of fields and to use that information as a basis for reasoned judgments and for effective problem solving, (2) to synthesize diverse ideas and information, and (3) to understand and convey ideas clearly.**”

It is precisely the mission of the Center to help students learn effective problem solving and the synthesis (integration and creation) of ideas and information by providing students with a variety of opportunities to develop and practice those skills and by facilitating the teaching of those skills through discussion, professional development and collaboration among Lander's faculty. In other words, the successes of the Center in meeting its goals will be, essentially, a significant part of the success of Lander achieving its mission, should the Center be implemented.

5.2 Learning goals and objectives for Lander students participating in the work of the Center.

Essentially all four of the General Education Goals for Lander University are addressed at some level:

1. University-level knowledge and comprehension
2. The ability to apply information
3. The ability to analyze information
4. The ability to communicate effectively and appropriately

Specifically, competencies would include:

1. Research skills within and across disciplines
2. Critical thinking skills that support integrative study and thinking
3. Integrative thinking skills (a subset and particularly challenging aspect of critical thinking skills (of which analytical skills are also a subset), which are at the top (highest order skills) of Bloom's Taxonomy (synthesis) (Bloom and Krathwohl, 1956)
4. Written and oral skills for communicating ideas and results for work of an integrative or interdisciplinary nature

Successful projects would demonstrate a high level of all four of these competencies, based on evaluations conducted by instructors or other faculty evaluators.

5.3 Professional development goals for Lander faculty (and staff).

"What is needed in teaching for integration, above any particular pedagogy, is an intentional approach. This means, first, designing courses with integrative learning in mind, and second, asking questions and gathering evidence about the specific challenges and dilemmas that students are facing as they develop their capacities as integrative learners." (Huber et al., 2007)

Faculty development should include *"efforts to create a campus culture where a larger part of the academic community (faculty, staff, and students) are engaged in common integrative work."* (Huber et al., 2007)

With respect to the faculty and staff at Lander University, the goals for the Center will be:

1. Facilitate faculty awareness of and interest in integrative learning.
2. Engage all Lander faculty in teaching intentional integration of knowledge, insights, theories and methods, as appropriate.
3. Provide a forum and learning community for faculty in the pursuit of effective teaching of integrative learning.
4. Encourage collaborative scholarship across disciplines, especially that which focuses on important, complex problems. Collaborative scholarship may include both faculty and students.

5. Provide support for the development and implementation of assessments of integrative learning in courses and other learning activities (internships, research projects, course-embedded projects, travel experiences).
6. Support the idea of integrative learning across the disciplines as a fundamental aspect of general education at Lander University.

5.4 Goals for the community at large and identified publics.

Although the focus of the center is primarily to serve the Lander University community, it will also benefit the community at large. The community at large includes potential employers of Lander students and graduates, local institutions, schools, and government bodies, non-governmental organizations and private citizens. As a state supported institution, Lander is public, and seeks to serve the Greenwood and wider community in a variety of ways. These include being responsive to community needs, providing events and activities available to the public, and extending benefits to the economy and culture of the area in ways appropriate to an institution of higher learning.

Goals of the Center with respect to this wider community are:

1. Provide educational opportunities to members of the local community to attend or participate in events of interdisciplinary or integrative nature. Such opportunities may include presentations, lectures, performances, showings, short courses, seminars or other activities.
2. Increase awareness of local employers, institutions and individuals of the benefits of integrative learning for Lander students and education, in general.
3. Research how integrative learning at Lander University may help employers in meeting their goals in their hiring of graduates, interns or coop students.
4. Communicate and market the benefits of integrative learning at Lander University to local employers, institutions and individuals.
5. Develop opportunities for interdisciplinary, integrative research and creative projects and activities with collaboration of Lander faculty and students.

6 How the Center will Meet its Goals

6.1 Practices to be encouraged and supported by the Center.

The following are practices that will be carried out, encouraged or facilitated by the Center.

6.1.1 Team teaching across disciplines

Lander University has not had much experience with the team teaching (co-teaching) of courses across disciplines. In fact, team teaching within disciplines appears uncommon as well, most likely because the incentive structure at the university does not reward faculty for team teaching, and may even penalize it in some ways. Yet, team teaching has

much potential for introducing students to different perspectives and approaches to complex problems and issues (Hanusch et al., 2009). Team teaching, appropriately designed and implemented, would be expected to foster dialogue and inquiry, leading to integrative learning.

6.1.2 Interdisciplinary courses within or across departments

Appendix 1 provides a partial list of courses currently taught at Lander University which have interdisciplinary or integrative content. Most of these courses are taught within departments. However, what is envisioned in this proposal is the design and implementation of courses that take on complex challenges or issues from a specifically integrative or interdisciplinary approach.

Case studies, research questions, student assignments, pedagogy ideas and much else can be collected and shared in dialogue among faculty across the departments/disciplines. This is often a major function of many of the centers for teaching excellence found at colleges and universities in the United States today. The major difference, here, is that the focus of all of this work is on integrative learning, at the highest level of Bloom's taxonomy.

The Center will search to facilitate ways in which interdisciplinary and integrative learning may be widely and effectively implemented in courses at Lander. Center members, in conversation with other faculty, staff and administrators, will research, develop and make recommendations for improving integrative learning within individual courses, programs, departments, colleges or the university as a whole. Those who teach courses with significant integrative learning as part of their goals and/or objectives will be encouraged to share their experiences, successes, challenges and solutions. This will help drive continuous improvement in the area of integrative learning at Lander University.

Almost all of the global issues courses at Lander are integrative and interdisciplinary, if they are to serve their function as global issues courses. These courses would present a significant opportunity for the participation of the Center to do its work.

6.1.3 Integrative research, creative projects and other activities among students and faculty

The Center will facilitate research, creative and other projects of an integrative nature among Lander students and faculty by:

1. Researching and publishing ideas for such projects,
2. Identifying sources of funding for projects and activities, as appropriate,
3. Providing an archive of examples of successful projects completed at Lander,
4. Assisting instructors in developing course-embedded projects that would meet requirements for integrative learning, as well as course goals, and

5. Putting people in touch with each other, who may contribute to projects or provide review and comment, especially people across departments or colleges.

6.1.4 Creation of an Integrative Projects Assessment Committee

This committee would develop rubrics and other assessment tools, be available to assess or assist faculty to assess integrative projects such as those in IDS 101, IDS 499, or interdisciplinary portfolios. The committee will share experiences and ideas with instructors, programs, departments and colleges who desire to include integrative project work in their courses or curriculums. The use of the committee would be voluntary, and the results of their assessment activities will be provided in workshops, seminars and/or reports.

It is not the intent for this committee to become an administrative unit, or functionary of the university to be used for involuntary faculty or course evaluation. Rather, it is to present professional development opportunities for faculty and provide learning opportunities for students (assessment, properly done, is an effective vehicle for learning), as well as a means to facilitate voluntary, continuous improvement in teaching at Lander University with respect to integrative learning goals.

6.1.5 Integrative seminars around challenges or issues of key importance (Environment, Health, Societal Issues, the Arts, etc.)

Seminars on major, complex challenges of social, scientific, political or artistic interest would provide participants an opportunity to exercise and hone their integrative thinking skills. Such seminars might consist of a few meetings or be semester or even a year long.

At Lander University, several of the special topics courses are such seminars. A few examples are mentioned in Appendix 1. From time to time, the opportunity for special seminars on timely topics of interest will arise, but which would not be assigned to one of the special topics courses, or may be too brief for academic credit according to the established catalog descriptions of those courses. Furthermore, many seminars may benefit from the participation by people outside of the Lander community.

6.1.6 Establishment of learning communities that are integrative in nature

For the purpose of this proposal, a learning community consists of both students and faculty working as co-learners in a mutually supportive environment. Effective learning communities “encourage integration of the curriculum” (Price, 2005), which is precisely a major goal of the Center. In fact, successful implementation of many of the best practices in this paper will do much to establish an effective learning community, for they are features common to many successful learning communities.

There is much data to support the idea that learning communities on campuses add much value to education, especially in increasing student engagement and in obtaining

effective, positive learning outcomes (Zhao and Kuh, 2004; Price, 2005). Learning communities can be created by linking courses and having students advance through them, including an entire core curriculum, together. Learning communities may be residential communities at colleges and universities such as the Western Program at Miami University (<http://miamioh.edu/cas/academics/programs/western/about/index.html>). This Western Program is somewhat similar to the ultimate vision for the Honors College at Lander University, if the Honors College was to also become an interdisciplinary studies program.

Certain majors at Lander also become learning communities in a variety of ways, often by encouraging team projects, having groups of students move through the curriculum together, service learning requirements and other means. Other than the Honors College, most learning communities at Lander are narrow in focus, such as around a given major. This proposal has an objective to establish a learning community across campus, among both students and faculty and with a broad focus. It is likely that students of the Lander Honors College will also be members of the Center for Integrative Studies learning community, but not all of them will and many students who are not members of the Honors College will be members of the Center. Membership in the Center will be open to all students, faculty and staff at Lander University, and is claimed by involvement in the work of the Center and/or in volunteering to participate.

Ideally, a common space will be provided so that students and faculty across campus could work together in close proximity and people from all areas of campus can feel welcome to come and go as need and interest occur. Perhaps something like an “Integrative Café” could be made available for students and faculty to interact, have seminars and workshops and simply exchange ideas.

6.1.7 Outside speakers on a variety of integrative topics, including supporting existing and new speaker series

By way of example, the Larry Jackson lecture series provides learning opportunities for students, faculty and staff of Lander University and the surrounding community. Many of the lectures, which are provided by invited speakers, are on interdisciplinary, integrative topics. Other lecture series with integrative content or that involve interdisciplinary perspectives are also provided by Lander, such as those sponsored by the American Democracy Project, the Earth Day Conference and the Peace Studies Conference.

Presentations by scholars and practitioners other than course instructors benefit both students and faculty. Outside speakers may reinforce or challenge subject matter learned in class, allow students to make connections between what is learned in class with other aspects of our world, provide opportunities for engagement with other experts than instructors, allow the opportunity to observe instructors and speakers interact, and provide opportunities for reflection relatively free of the constraints and pressures of the

classroom. Faculty may benefit in learning new things about their subject matter or obtain ideas that may inform their teaching.

The Center would assist with identifying and obtaining appropriate speakers for current and future efforts at Lander. It could also act as something of a speakers' bureau, or, clearinghouse, for faculty and others to identify content experts.

The Center's main focus would be on presenters who are expert on or experienced with understanding and finding/proposing/implementing solutions for challenging, complex problems that requires a high degree of integration of material from two or more disciplines. Of course, this is a very broad purview, and it may be more difficult to define topics of interest that would not meet those criteria.

It might be worth considering having the Center or another organization on Campus coordinate speaking events and conferences on campus. It has not been uncommon for schedules of speaking events and conferences to conflict from time to time, especially if they make use of different spaces on campus. This has the impact of forcing students to make hard choices, so that they are not be able to take full advantage of learning opportunities. This also has had the effect of reducing participation in some events that compete. In addition, opportunities may arise to leverage two or more events with similar contents, to combine resources and thus enhance participation and the learning value of participation by students. Of course, it is not in Lander's interest to create a barrier for learning opportunities such as presentations and conferences, so this function would be entirely voluntary and collaborative.

6.1.8 Encouraging field studies involving two or more disciplines

Field studies, as defined in this white paper, are those studies which are conducted away from the Lander University Campus. Such studies may include course embedded research projects, independent research (for credit or otherwise), service learning opportunities which involve some scholarship, or formal or informal involvement with faculty research/scholarship projects.

The literature indicates a positive relationship between student engagement and learning (Carini et al., 2006). Engaging students in field research is one way of providing student engagement and deeper interaction with faculty members, both of which have been found to contribute to student learning.

The Center will encourage such field studies by bringing researchers together and putting faculty in touch with students or other faculty who have an interest in a particular type of problem or study, but who may be in another department or college. Research forums, seminars or workshops would be ways of accomplishing this. These would be organized around topics or methods of conducting research/scholarship or creative activity. Such activities would especially benefit newer faculty members who may not quite be fully aware of the great potential that is to be found at Lander University.

Modest seed funding for interdisciplinary projects could be made available at the institutional level. Faculty development grants are available for that purpose, already. Perhaps funding could be ear-marked specifically for collaborative and/or integrative research of evaluation criteria for the faculty grants could include categories for integrative/interdisciplinary work or collaboration as priority items.

6.1.9 Encouraging study away and abroad as opportunity for integrative learning

Lander University requires a period of study away or abroad for Honors College Students, and encourages many students who meet academic requirements to avail themselves of the opportunity to travel abroad. The Program of Study Abroad at Lander has a Director and a committee of 17 members (including alternates), including two students and the Dean of International Students to guide its activities.

Some colleges and universities integrate learning goals and/or assessments into their study abroad programs, including those in general education or the liberal arts. Examples include the University of Michigan, Haverford College, Emory University, Georgetown University, and Beloit College, to name a few. Participation in study abroad at Lander University does meet the Global Issues university requirement, once completed.

Learning about other cultures and geographies is clearly a challenging, highly integrative process, and coursework learned internationally could be integrated into general education or learning in major programs at Lander. The Center could assist by helping develop assessment or pedagogical tools for integrative global learning or related goals for study abroad students and faculty.

Perhaps counterintuitively, students who participate in study abroad programs tend to have higher persistence and degree completion rates at four, five or six years than students who do not. (O'Rear et al., 2011, Xu et al., 2013) Although study abroad and study away are not major initiatives of the proposed Center, units of the University should get into the habit of encouraging and supporting each other and those initiatives that work to enhance student learning, especially those for which there is much data to support their expectations of effectiveness. Academic advisors associated with the Center would encourage students to pursue opportunities for study abroad or away and put them in touch with the Director of the Study Abroad Program or faculty who lead study abroad tours.

Perhaps an annual seminar in which study abroad students can share their experiences and key learning, from an integrated perspective, could be implemented. This need not be a specific function of the Center (though it could be), but could be one of the Study Abroad Program, assisted by the Center, if that is desired. In this scenario, students would make presentations in the semester or academic year following their experience. They may alternatively present a particular scholarly or creative work based on that experience or completed during their time away. We could call this event something like "Lander Around the World".

6.1.10 Developing and applying tools for assessment of integrative learning

There are several assessment tools for interdisciplinary and integrative learning that are widely available, many of which are rubrics. The literature on assessment of integrative and/or interdisciplinary learning is significant and broad. The Center would help in the development and/or if of interest, the implementation of assessments for integrative learning. Assessment instruments could be for assignments, papers, creative products, projects, internships, service learning, courses or programs. These are anticipated to be tailored to specific requirements, but with a general goal of providing at least partially consistent assessment across the university, with respect to integrative learning goals and objectives, at least.

The Center would collect the results of these assessments for appropriate reporting at the Center, program or university level. In other words, the Center would undertake the task of assessing integrative learning across campus. Participation in these assessments would be voluntary for faculty, programs, departments and colleges. The efforts would have to be piloted on a smaller scale before being applied on the larger scale, and would certainly respect the current assessment regime that is in place. It is anticipated that several of these assessments will be applied to Lander's Interdisciplinary Studies Program as pilot projects and as part of program assessment. Conversely, assessment tools for integrative learning in the IDS program can be adapted for other initiatives, courses and programs at Lander University. The Office of Institutional Research would be a key resource in these efforts.

Assessment data will be used to improve integrative learning on campus, at all scales. In order to do this, the data will be input into a database and periodic reports with recommendations would be generated. It is anticipated that reporting would be annual, just as it is for academic program assessments across campus. Individual programs, if they so wish, could include this data in their own program assessments and reports.

6.1.11 Encouragement and making new faculty aware of opportunities for collaborative, interdisciplinary scholarship and teaching

New faculty, upon arrival on campus, may be unaware of many opportunities for collaborative research and scholarship. The Center will provide information on these collaborative opportunities, especially those which are integrative in nature, to interested faculty.

In order to do this effectively, information about current and recent research and other scholarly activity among Lander faculty will be collected and kept update. Faculty who have an interest in pursuing collaborative work may identify themselves and their research interests.

In recent years, the President has prepared a report that summarizes scholarly activity of Lander faculty members. This appears to have been discontinued over the last two years.

It is an effort well worth it, to demonstrate the scholarly impact of Lander University, and which may provide inspiration for other research, including collaborative, integrative research. The Center could assist this project, especially by providing information about collaborative and/or cross disciplinary projects.

To encourage this, faculty workshops and seminars will be provided. In recent years, at the summer faculty expo held the week prior to the start of classes, faculty members have presented research projects. Collaborative and interdisciplinary research have been topics of past faculty expo presentations. Similar workshops could be given during the time classes are in session, and students could be invited as well, because they could benefit from witnessing just what it is that those faculty do for research and in developing new ideas.

6.1.12 Develop a reward structure for integrative scholarship and teaching

Faculty members, like employees everywhere, do those things and do well those things that are rewarded by some incentive. Both external and internal incentives apply.

Of course, to encourage innovation in teaching and learning, especially collaborative, interdisciplinary and integrative teaching and learning, a university may start with removing disincentives that may be in place. The traditional departmental and college structure provides a set of such disincentives. A key example at Lander University is the disincentive for team teaching, primarily because team taught courses are not a part of any instructor's primary teaching load. A common solution to the few team taught courses at Lander has been that each instructor will take turns receiving the contact hour credit for the course, in its entirety, and consequently salary, for the course.

Another disincentive for much innovation of this type is simply the demands on the part of faculty for service and teaching within departments and colleges. There simply is not enough available time, resources and opportunity to try new things (Hanover Research, 2013). The establishment of the Center would include provision of some of this time (release time for significant projects or accredited teaching time for team taught courses), resources (dedicated funds for expenses, professional development opportunities, summer pay in appropriate instances) and opportunity. The details of this aspect of the Center will be developed in a full proposal for the Center.

6.2 Ways in which the Center will seek to achieve student learning goals and outcomes in integrative learning.

One or more courses, seminars or modules will be offered to students that will specifically teach integration skills. IDS 101 and IDS 499 do this for IDS majors, specifically, though IDS 101 is available to non-majors, but only as a general elective at this point.

All incoming freshmen are required to take UNI 101, which is a one hour course that has the major purpose of helping students become successful at Lander University. The

subject matter of this course is quite diverse and, as of this writing, is being assessed. It is possible that a section could be added to this course that will at least make students aware of the necessity of learning basic critical thinking, interdisciplinarity and integration. Alternatively, a one-hour seminar might be required each year at Lander University to help students develop essential critical thinking skills, including integration skills. If not required of all students, such one-hour seminars may be offered by the Center as electives, or they could be required by participating programs of study, or the Honors College. If such courses were available, it is likely that they would be required by IDS students to help them bridge the time between IDS 101 and IDS 499.

The Department of Biology has recently developed the requirement that students participate in annual seminars (BIOL 299, BIOL 399, BIOL 499) that teach students basic skills in the discipline that are not specifically covered by the content-based coursework, in detail at least, and also which allow refreshment of skills learned earlier. Other programs, such as the Environmental Science program at Lander, embed instruction in critical thinking skills in lecture courses and require extensive semester projects that require their use. The ES program has also recently added lab/recitations to two courses to help accomplish this goal, especially with respect to problem solving and project management skills.

6.3 Ways in which the center will seek to achieve faculty and staff professional development goals.

Professional development at Lander University is broadly defined, and includes the areas of teaching, scholarship, advising and service. Thus, any activities that improves a faculty member's skills or performance in one or more of these areas would be considered professional development, according to Lander Faculty Handbook. Individual colleges and departments have their own criteria that must be met for professional advancement to occur (tenure and promotion), and these are in addition to those for the university as a whole. In some usages, professional development has been identified with scholarship.

The Center will address teaching and scholarship activities in a variety of ways, as outlined above in the descriptions of best practices to be encouraged by the Center. Seminars, workshops, conferences, collaborative research, service learning projects or team teaching are all suitable activities for professional development. Assistance, facilitation or presentation of any of these are ways in which the Center will help faculty and staff members achieve professional development goals.

7. Proposed Center Administrative Structure

The center is currently envisioned as an academic unit with a Director reporting to the Provost. Center leadership will include, initially, a Director, an Advisory Committee of at least one faculty member from each college, the Director of the Honors College or her designee, the Dean of the Library or her designee, Director of the Career Center, and three students. Membership on the committee among faculty is for periods of three years.

Student membership would be for periods of one year, renewable for a maximum of three years. Student members will be Sophomores or Juniors when they begin their tenures on the committee. The Advisory Committee has the task of advising the Directors on the establishment, growth and conduct of the Center.

Eventually, it is anticipated that the Center will have at least one or more dedicated full-time faculty members (IDS faculty) plus administrative support. Dual appointments with faculty in the disciplines are possible, but Lander University has essentially no experience with this at this point.

It is proposed that faculty members who have an interest in the Center and its goals may volunteer to be members of the Center. Membership in the Center need not result in membership on the Advisory Committee of the Center, because it is understood that some interested parties would prefer to limit their participation to specific areas of interest, such as to teach a seminar or to engage in student-centered integrative research. All such activities are to be encouraged.

The Center's role in the University structure would be similar to that of the Honors College or even the EYE Program. It is not proposed to make it a college, per se, because the Center will serve all academic units of the university and has, as a chief function, the collaboration of faculty and students across campus.

The Director of the Center will report to the Provost, and will have the overall responsibility for the management and leadership of all activities of the Center. Management tasks for which the Director will be responsible include planning, assessment, reporting, coordination of events, seminars, workshops and retreats, appropriate research, outreach, instruction and other basic functions described in the pages above. It is proposed that an administrative assistance be at least half time dedicated to the Center. This assistance could come be shared with the Office of Academic Affairs or be dedicated solely to the Center.

The Interdisciplinary Studies Program may interact extensively with the Center, especially considering the similar academic interests and goals of both entities. The IDS program and the Center, at the least, can facilitate the spreading and deepening of integrative learning across campus in several ways. Courses and seminars of the two entities could leverage each other, as well. The IDS program is the only current academic program at Lander University that has integrative learning as one of its major goals, at present. There will need to be discussion as to how the Center and an academic program (major), might work together in the university structure.

Certain other integrative or interdisciplinary learning activities already pursued at Lander would be assisted by the Center. Some of these activities could include the Peace Studies Conference or the Academic Showcase, for example, and as discussed in the section 'Integrative Learning at Lander University'.

8. Resources Needed

The immediate resource requirements for the Center, if it is pursued at Lander, would be for a Director and for administrative support. A location dedicated to the Center, including office space, a seminar room and perhaps something like the “Integrative Café” idea mentioned earlier is proposed.

The Director would be a compensated position, perhaps, at least initially, half time for administration of the Center and half time appointment in an academic department with up to half-time teaching. There is precedent for this type of arrangement at Lander University. If the position is filled from among the current faculty at Lander, 12 hours of release time could be provided annually plus an administrative stipend for the additional responsibility. The position would be for ten to twelve months.

A part-time administrative assistant would also be needed. This position could be shared with another unit or be a part-time employee.

9. Assessment of Student Learning Outcomes

New assessment strategies and tools will be developed as the planning for the Center moves forward. It is anticipated that the assessment committee for the Center, in conjunction with the Director of the Center will develop these as an early priority. Individual faculty, programs, departments and colleges will develop of instruments and strategies that will apply to their own academic units, with the help of the Center, should they have specific interest in pursuing integrative learning goals in their own assessments and seek the assistance of the Center.

Guidance for assessment of integrative learning for student projects and performances (presentations, etc.), using rubrics is now widely available. One such source outlining basic principles of assessment and providing advice is from Miller (2005). Rubrics are used for assessing projects, presentations and portfolios in the IDS program at Lander. These rubrics would provide a starting point for development of assessment instruments for the Center. The integrative and applied learning VALUE rubric is a widely recognized assessment instrument for integrative learning (<https://www.aacu.org/value/rubrics/integrative-learning>). This instrument, among others, will serve as a baseline for discussions and development of assessment instruments specific to activities of the Center.

10. The Lander-Specific Information Supporting the Center for Integrative Learning

Below is some of the information that describes integrative learning activities and courses at Lander University, in which integrative learning plays an important part of the content and/or pedagogy. This information demonstrates the importance of integrative learning at Lander University, and indicates opportunities for the Center to positively influence student integrative learning in the ways indicated in this paper. Also included in this

section is a discussion of the first year of Lander University's IDS program, including initial assessment of the program and the identification of opportunities and challenges for Lander students based on IDS 101 and IDS 499. These data are preliminary, given the small number of students involved and the fact that this past academic year was the inaugural year for the program.

10.1 Strongly interdisciplinary or integrative learning activities of Lander University.

There are many activities and programs at Lander University that are of an integrative or interdisciplinary character. The list below is a partial list of activities and programs. Assessment is discussed in the following sections.

- The Lander IDS program
- The Environmental Science Program (a program that requires development of competence in biology, chemistry, geology, basic environmental science and basic human sciences to understand environmental challenges and their potential solutions.)
- The Academic Showcase (an annual event that takes place every Spring semester and involves all colleges.) An interdisciplinary category has been added to the Showcase.
- Study Abroad and Study Away (a requirement of all students in the Honors College and is available to other students who meet the minimum academic requirements.)
- The Honors College
- The EYE Program (a program in which students complete internships and other approved activities, such as research and course embedded projects, which have a strongly experiential component)
- The Peace Studies Conference (an annual conference that takes place each Spring term and includes outside and inside presenters, including faculty and students)
- The Lander Arboretum
- The Earth Day Symposium (an annual event that takes place in the Fall term in which faculty presenters from non-science disciplines share how their particular disciplines are concerned with and address the environment)
- The content of the Lander Professional Programs (those in Business, Education and Nursing). Professional programs, by their nature, are essentially integrative
- Most (if not all) student internships in professional organizations
- Many course embedded projects
- Certain courses with integrative or interdisciplinary themes (Appendix 1)

10.2 Summary of Integrative Learning Activities at Lander University.

There are many aspects of integrative learning to be found at Lander University. This section provides a summary of these. Some of these activities could be included under the auspices of the Center, while others would be assisted by proposed Center activities, resources and staff.

Nine academic programs plus the EYE program at Lander University assess specific learning outcomes that are related to integrative learning, or interdisciplinarity. Table 1 summarizes specific unit program goals related to integrative learning and/or interdisciplinarity (<http://www.lander.edu/academics/Institutional-Effectiveness/Unit-Outcome-Plans.aspx>). Some of the goals indicated below are not specifically integrative, except that to meet those goals adequately, integration at a high level would be required.

Table 1: Program Goals at Lander University related to Integrative Learning

Program	Integration-related goal
Communications	"To analyze and critically evaluate messages produced in multiple media"
	"To identify and discuss historical, ethical and legal issues related to the student's chosen emphasis area."
English	"To demonstrate an ability to understand texts within context, such as history, politics, genre and/or culture"
	"To demonstrate familiarity with textual criticism and the ability to integrate sources"
School of Management	"Students will have basic knowledge of the legal environment including constitutional and administrative law, business organization and forms, contracts, securities laws, employment relations, intellectual property rights, torts and liability, and the court system."
	"Students will be able to identify business problems, formulate alternatives, and select most appropriate solution."
	"Students will be able to identify and analyze ethical issues."
	"Students will be able to identify and analyze corporate social responsibility issues."
Criminal Justice	"Students will demonstrate ability to recognize the relationship between ethics and specific criminal justice issues and behaviors."
	"Students will demonstrate the ability to articulate the relationship between criminal justice policy and effective law enforcement."
Physical Education	"The professional physical educator integrates content knowledge and skills of scholarly inquiry to teach all students."
Environmental Science	"Students will demonstrate an understanding of the scientific basis (chemistry, biology, geology, basic environmental science) for environmental challenges and proposed solutions."
	"Students will demonstrate an ability to develop and articulate well informed and reasoned views on environmental issues, based on an understanding of legal, ethical, social, political, and economic ramifications of environmental policies, problems and decisions."

Interdisciplinary Studies	“Students will demonstrate the ability to integrate the two disciplines (<i>in the module (italics this document)</i>) into a comprehensive body of knowledge.”
	“Students will demonstrate the ability to communicate understanding of the inter-disciplinary links to others, both orally and in writing, or in other media as appropriate to their module.”
Computer Information Systems	“Graduates demonstrate an understanding of the legal and ethical issues they may encounter as CIS professionals.”
EYE (Experience Your Education) Program	“Strengthen Lander University’s graduates’ ability to apply knowledge, skills and desirable personal characteristics associated with their disciplines and real world problems.”

A review of the course descriptions found in the 2015-2016 Lander Catalog revealed more than 100 courses with identifiable integrative or interdisciplinary content. A listing of these courses is provided in Appendix 1. These courses were identified according to at least one of three criteria.

1. The word ‘integrative’ was in the title of the course.
2. The course description specifically indicated that the course integrated one or more topics, subject areas, disciplines or skills, at least one of which could have been the subject of another major.
3. The course description identified at least two disciplines that would be the subject of the course, at least one of which would normally be taught in another department or college.

The list in the appendix is not all inclusive of courses at Lander University that have integration of two or more disciplines, areas of study or skills, but it is sufficiently broad and complete to demonstrate the importance of integrative learning to the university.

The professional programs at Lander University, or any institution of higher education, for that matter, are essentially integrative and interdisciplinary, based on any definition of the two terms. These programs specifically include the Schools of Nursing, Management (includes all emphases of the school) and Education (includes all teacher education programs within the school), among others.

The degree to which the programs make a conscious and effective effort to help students deliberately ‘learn about learning’ or how to effectively and deliberately go about integrating insights, knowledge or skills from two or more disciplines, is not currently identified. The Center, as part of its mission, will facilitate dialogue among the program faculty to determine to what degree programs deliberately facilitate integrative learning, to identify how the programs engage in integrative teaching and learning, and to identify areas in which the Center may help enhance integrative teaching and learning.

10.3 Lessons learned from the IDS program at Lander in its first year of implementation.

The Interdisciplinary Studies Program at Lander University was implemented in the Fall of 2014. During that year, a total of four (4) B.S. degrees were awarded. The program continues to grow in student numbers and in the number of modules (majors) offered in the program. There are currently nine approved modules, several of which have multiple students.

The learning goals (Lander Catalog, 2015-2016) for the program are:

Students completing an IDS program will

1. gain college level understanding of the fundamentals of the two disciplines in their IDS module;
2. analyze and critically evaluate information in those two disciplines;
3. demonstrate the ability to integrate the two disciplines into a comprehensive body of knowledge; and
4. demonstrate the ability to communicate understanding of the inter-disciplinary links to others, both orally and in writing, or in other media as appropriate to their module.

The third goal indicates the importance of integration in the IDS program. This skill is demonstrated and evaluated based on a semester research project completed in IDS 499. This assignment builds upon skills learned as a result of completing a somewhat similar semester project in IDS 101.

The first two goals are based on the well supported idea that, in order to effectively integrate insights from two or more disciplines, students must be able to demonstrate ‘adequacy’ in each discipline (Repko et al., 2014; Repko, 2012; Repko et al., 2012). Adequacy refers to sufficient competence in a discipline to address a complex problem that involves more than one discipline. Levels of adequacy appropriate to the interdisciplinarian need not meet the requirements to major or become a specialist in a discipline. Of course, there are different levels of adequacy required of the student, based on the student’s level of academic study or research. One major difference between the disciplinary and interdisciplinary student is that the interdisciplinarian must gain a basic understanding of the epistemology of the disciplines that are included in research or classwork. Many disciplinary students are not taught the specific epistemology of their own disciplines, let alone other disciplines. In fact, the subject of epistemology may not come up at all, except perhaps in the most rudimentary sense, in disciplinary study

The core and most challenging skill taught in the IDS program at Lander is integration. In the Lander program, demonstration of full integrative learning requires the synthesis of insights from two or more disciplines to develop a more comprehensive understanding of a complex problem of the student’s choosing. The IDS 499 projects require the synthesis of insights and knowledge from no fewer than three disciplines, the two specified in each student’s own module plus at least one other one that is appropriate and relevant to the problem of interest for the student.

Synthesis is the highest order skill or level of learning in Bloom's Taxonomy (creating) (Bloom and Krathwohl, 1956). Of course, mastery of all of the other levels of Bloom's Taxonomy are inferred from a mastery of synthesis.

In IDS 101 lectures, class discussions and assignments, including the semester research assignment, focus to a large degree on understanding, applying and analyzing interdisciplinary and relevant disciplinary concepts. Evaluation skills are introduced and applied in IDS 101, but this provides a starting point for IDS 499, following review of IDS 101 concepts.

Critical thinking is a set of skills that include the higher levels of Bloom's Taxonomy, particularly understanding, analyzing, evaluating and synthesizing. Analysis and synthesis are skills that are opposite in sign. Analysis involves the breakdown of systems or subjects into components for more detailed study of each. Most scientific work, as currently practiced by most scientists today, is reductionist, involving fine analysis of parts of larger systems. Synthesis involves the combination of components or concepts to build larger frameworks or structures. The development of comprehensive theories in science, such as Darwin's Theory of evolution from natural selection, is synthetic activity following often long periods of work involving detailed, painstaking analysis of data. Understanding, applying and evaluating can apply to components or entire systems, and thus may apply to various levels of complexity.

There was ample discussion among the instructor and students in both IDS 101 and IDS 499 regarding the teaching and learning of critical thinking skills at Lander University. The students expressed a consensus (unanimous, in fact) that none of them has had any specific opportunities to learn critical thinking as a specific subject, and that they would benefit from such.

The students in the IDS program at Lander make up a small sample of the student population at Lander University, and are not likely to be representative of all or even most students, though they do come from a variety of academic backgrounds. However, to support their opinions, few, if any, of the IDS students confessed familiarity with any of the critical thinking concepts discussed in the class. The result of this was that additional instruction time was dedicated to the teaching and learning of fundamental critical thinking skills. In the future, IDS 101 will cover critical thinking skills at a more fundamental level and in more detail.

It should be noted that the students in IDS 101 during Fall 2014 were all juniors and seniors, so that the instructor began the course with the assumption that all students would have had at least a rudimentary background in critical thinking as applied to their former majors. This assumption would not apply in the future, both because there are freshmen and sophomores enrolled in the fall of 2015, and because of the experiences with student feedback and assessment in IDS 101 during Fall 2014.

It is undoubtedly true that critical thinking is taught in varying ways and degrees in different programs and courses at Lander. What may be less obvious is whether students that are taught critical thinking skills in one discipline also learn that they can be applied, sometimes with a little modification, to learning in another discipline or in life. In fact, the students in IDS 101 and IDS 499 identified critical thinking to ‘thinking like a scientist’, perhaps, at least in part, because their instructor in both IDS courses is one of the science faculty. The students did not seem to be aware that rigorous critical thinking is applied to non-scientific pursuits, such as in the humanities, and that the ‘scientific method’ is actually a subset of critical thinking approaches.

Students in IDS also frequently indicated that they have not been taught problem solving skills, at least in a deliberate way, and would like the opportunity to be exposed to ways in which a variety of problems could be solved. They seem to be unfamiliar with the concept that critical thinking is essentially deliberate, direct problem solving, and that there are several problem solving approaches, or methods. It would seem that students could derive great benefit from learning problem solving approaches early in their academic careers, whether as part of their major program or in general education.

This is the first year of existence of the Interdisciplinary Studies Program at Lander University. Program assessment data were collected and reported to the Office of Institutional Research, although not required, this May 15. It is anticipated that some changes to the program, course content and assessment instruments will be made.

All of the learning goals in this first annual assessment were met by the assessment data. The fact that all program goals were met in this first assessment suggests that, in the interest of continued improvement, selected assessment instruments and processes will need to be revised to specify where priorities for improvement should lie.

The only obvious softness in the current set of program assessment data was in the area of writing quality. This will be addressed by adding short writing assignments to IDS 101 and IDS 499, continuing with detailed comments on most writing assignments, including those considering the mechanics of writing, increasing the weight of writing skills demonstrated in assigning grades for certain assignments, and increasing the weighting of writing quality on assessment rubrics in those two courses.

A remarkable aspect of IDS program assessment in this initial year was that a total of eleven faculty in eleven disciplines or sub-disciplines (Business Administration, Psychology, Special Education, Early Childhood Education, History, Psychology, Health Care Management, Mass Communications, Visual Arts, Biology, Chemistry and Environmental Science) was heavily involved. Most of these faculty were involved in assessing multiple students and multiple deliverables (presentations, written project reports and portfolios). It is essential that this level of faculty involvement be maintained across disciplines in the IDS program at Lander. It is a priority to increase the breadth and depth of this kind of collaboration as the program and the Center grows and matures. This is the level of collaboration sought for the Center for Integrative Learning through the establishment of an Integrative Learning Assessment Committee as outlined

previously and for faculty who would volunteer to help develop and implement new assessment tools.

11. Integrative Learning Centers and Programs at Other Colleges and Universities:

The following bulleted list mentions several programs that are called centers for integrative studies or which are similar to the proposal. As the reader will see, there are a variety of forms and scopes that such centers take.

- St.Olaf College, Center for Integrative Studies, <http://wp.stolaf.edu/cis/> . Opportunities for research for faculty and students. Majors combining disciplines can be developed by students. Other activities can be integrated into the educational framework. Topical seminars provided from time to time. Staff consists of a Director (who is also a Dean) and a coordinator.
- Johnston Center for Integrative Studies at Redlands University. This is an academic program and learning community that used to be a separate college of the university. Individual academic programs developed in conjunction with students and an academic committee. The programs are defined in Graduation Contracts, each of which is unique to each student. There are also study abroad opportunities. There are about 200 students in this program. There are apparently four full-time faculty assigned to this program. It is similar to our Honors College except that students are responsible for developing their own programs of study. http://www.redlands.edu/academics/616.aspx#.VPys8_nF_-o
- Center for Integrative and Interdisciplinary Studies, CSU-Channel Islands. Provides support for interdisciplinary research, scholarship and teaching to students and faculty. Managed by a Faculty Advisory Committee consisting of a Director and six members, each from a different discipline and the library. Awards grants. Sponsors student contests or events. Archives projects. This center seems to have a focus on interdisciplinary pedagogy among faculty. Also provides a clearinghouse of information for grants and conferences, many external to Redlands, on teaching and scholarship in IDS. <http://www.csuci.edu/cis/>
- Center for Interdisciplinary Studies at Tufts University. Considers interdisciplinarity “the foremost academic initiative of our time.” Includes an interdisciplinary studies major (limited to students with GPA of 3.4 or higher) and a Center for Interdisciplinary Studies Senior Thesis. There are 19 affiliated academic programs on the Tufts University campus. All of these are interdisciplinary in nature and may be housed across the university. Presentations and panel discussions also seem to be sponsored by the Center. There are a Director and Program Administrator (latter position currently vacant) and 17 affiliated faculty members, each from what appears to be an affiliated program. Apparently there are IDS minors, which require capstone projects. <http://cis.tufts.edu/>
- Center for Interdisciplinary Studies, College of the Holy Cross, Student designed multidisciplinary majors, student designed research opportunities (includes

Honors College Theses), and off-campus educational opportunities. Lists 19 staff members, including a director, several associate directors, several directors of affiliated, interdisciplinary programs, two coordinators and two administrative assistants. <http://academics.holycross.edu/cis>

- Integrative Learning Initiative of the Center for Teaching Excellence at the University of South Carolina (http://www.sc.edu/cte/integrative_Learning.php). The initiative provides resources for faculty and students. Several events are also planned throughout the academic year, including an Integrative Learning Faculty Showcase. Center for Teaching Excellence Integrative Learning Grants are also provided to faculty to develop and demonstrate pedagogies related to integrated learning.
- Integrative Core Curriculum at Ithaca College (http://www.ithaca.edu/icc/what_is_it/).
- Western Program at Miami University. This is a residential, interdisciplinary program, which involves core courses and individually generated studies programs. Faculty and students are both integral parts of this learning community. (<http://miamioh.edu/cas/academics/programs/western/about/index.html>)
- River Basin Research Initiative, Furman University. A multidisciplinary research initiative, including a summer program, (<http://rbri.furman.edu/>)
- There are many centers for integrative or interdisciplinary studies with particular themes or areas of study. Each returns more than 2MM results (more than 5MM total) on GOOGLE. Those included herein should give the thoughtful reader an idea of what is out there and how the proposal may fit. Note that the current proposal is rather modest as compared to some of these Centers.

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APPENDIX I: List of Lander University Courses that have Integrative or Significant Interdisciplinary Content.

Course Designation	Course title
ANTH 271	Topics in Anthropology/Archaeology
ANTH 321	Medical Anthropology
ART 221	Visual Literacy and Critical Inquiry
ART 424	Integrated Arts Instructional Strategies: Art
(All 10 listed art history courses)	
BIOL 306	Ecology
BIOL 415	Limnology
BA 251	Legal Environment of Business
BA 351	Business Ethics
BA 390	International Business
CHEM 381	Technology, the Environment and You
CJM 401	Ethics in Criminal Justice
DANC 327	Integrated Arts Instructional Strategies: Dance
ECON 321	Environmental Economics
ECON 351	Health Economics
EDUC 202	Education in America
EDUC 240	Child Growth and Educational Process
ECED 222	The Young Child Growth and Development
ECED 227	Introduction to Early Childhood Education
ECED 415	Integrative Creative Arts for Early Childhood
ENGL 451	Methods of Teaching Secondary English
ES 301	Introduction to Environmental Science I
ES 302	Introduction to Environmental Science II
ES 390	Global Topics in Environmental Science
ES 415	Limnology
GEOG 101	Introduction to Geography
HCMT 201	Health Care in America
HCMT 281	Legal, Ethical and Regulatory Aspects of Healthcare
HCMT 410	Health Care Systems
HIST 451	Methods for Teachers of Secondary Social Studies
HONS 211	International Issues in Humanities
HONS 291	International Issues in Public Affairs
HONS 292	International Issues in Logic and Analytical Thought
HONS 294	International Issues in Behavioral Sciences
HONS 295	International Issues in Fine Arts
HONS 296	International Issues in History
HONS 297	International Issues in Literature

HONS 299	International Issues in Mathematics
HONS 393	International Issues in Education
HONS 398	International Issues in Science
HUMA 230	Studies in Humanities
HUMA 285	Introduction to Film Studies
HUMA 330	Special Topics in Humanities
HUMA 390	Special Topics in World Cultures
IDS 101	Introduction to Interdisciplinary Studies
IDS 499	Interdisciplinary Capstone Seminar
The three leadership courses	The problem of leadership is a complex human problem requiring the integration of several skills and dispositions.
MGMT 301	Principles of Management
MGMT 315	Human Resources Management
MGMT 340	Management of Organizational Behavior
MKT 305	Marketing Communications
MKT 420	Marketing Management
MATH 350	Mathematics History
MEDA 101	Introduction to Mass Media
MEDA 421	Seminar in Media Law and Ethics
Military Science (MSL) courses Excluded from this analysis	Some of these are undoubtedly integrative in nature. These were excluded because a few of these will introduce military obligation among the students.
MUSI 101	Introduction to Music
MUSI 201	Introduction to Music History
MUSI 322	Integrated Arts Instructional Strategies: Music
MUSI 315, MUSI 317, MUSI 318	Methods of Teaching.... Choral, Instrumental, Orchestral
MUSI 333	Music of the World
NURN/NURS 310	Current Perspectives in World Health
NURN/NURS 372	Healthcare Genomics
NURN/NURS 373	Spirituality in Nursing
NURN/NURS 412	Nursing Leadership and Management
NURN/NURS 417	Community Nursing
NURS 165	History and Trends in Nursing
NURS 232	Pharmacology Basics
NURS 393	Mental Health Nursing
NURS 460	Clinical Problem Solving
PEES 219	Historical and Philosophical Principles of Physical Education and Exercise Studies

PEES 308	Organization and Administration of Exercise Related Professions
PEES 325	Human Sexuality
PEES 361	Legal Aspects of Exercise Related Professions
PEES 424	Sports Psychology
PEES 453	Medical Conditions and Disease
POLS 320	Environmental Politics
POLS 325	International Conflict
POLS 331	Political Philosophy
POLS 366	International Organization and Law
PSYC 303	Psychology of Aging
PSYC 306	Psychology of Personality
PSYC 341	Psychology of Religion
PSYC 358	History and Systems of Psychology
PSYC 360	Women and Men
PSYC 405	Death and Dying
RELI 301	Religions of the World
SOCI 205	African-American Communities
SOCI 210	Corrections, Probation and Parole
SOCI 227	Social Movements
SOCI 311	Introduction to Social Work
SOCI 314	Social Welfare Policies and Programs
SOCI 321	Medical Sociology
SOCI 326	Society and Law
SOCI 328	Sociology of Gender
THTR 345	Integrated Arts Instructional Strategies: Drama
THTR 350 and THTR 450	Theater History and Literature (Different historical periods for each course)

APPENDIX II:
Pre-Proposal Format

Title CENTER FOR INTEGRATIVE STUDIES

(Note: Slightly more complete description follows the Pre-Proposal Format material)

Daniel Pardieck, Associate Professor of Environmental Geology, Coordinator of the Interdisciplinary Studies Program, Coordinator of the Environmental Science Program

I. What learning outcome(s) do you intend to address?

Essentially all four of the General Education Goals are addressed at some level:

1. University-level knowledge and comprehension
2. The ability to apply information
3. The ability to analyze information
4. The ability to communicate effectively and appropriately

Specifically, competencies would include:

1. Research Skills in more than one discipline
2. Critical thinking skills that support integrative studies
3. Integrative thinking skills (a subset and particularly challenging aspect of critical thinking skills)
4. Written and oral communication skills

Successful projects, as currently envisioned, would need to demonstrate a high level of all four of those competencies.

II. Summarize the plan you would put in place to address the learning outcome(s).

The basic plan is to assess individual and team integrative projects for levels of mastery demonstrated for the learning outcomes. Rubrics will be created for each type and level of project. It is also anticipated that selected faculty and/or faculty-student projects will be assessed to provide examples of successful, high quality integrative work. Projects would be part of 1) seminars, 2) appropriate classes (whether within departments or collaborative in nature), 3) events such as the Academic Showcase or the Peace Studies Conference, 4) integrative research projects, and 5) other, as yet unidentified opportunities.

III. Are you aware of Lander assessment data that provides support for your idea?

Please describe the nature of this data. Specific data does not need to be cited in this pre-proposal.

The only data of which I am currently aware are that which measures critical thinking and related skills in our general education or program assessments (exams, program exit exams such as the MFT in Chemistry, and perhaps a few other relevant pieces of program assessment data that may be relevant. I have not accessed any of it at this point.) I suspect that this might be a significant data mining project.

- IV. Are you aware of related literature sources that might be used in writing a full QEP Proposal? Please describe the nature of those sources? The pre-proposal does not require a bibliography.

Several sources are indicated in this document for similar centers at other institutions. The peer reviewed literature in education, integrative studies and much else exists in abundance out there. One might very well come up with an extensive dissertation on this idea.

- V. What departments or administrative units at Lander would play key roles in the implementation of this plan?

Because this proposal covers topics across the disciplines, it would involve members of each of the four colleges, the Provost's Office, the Honors College, the University Library (archiving projects, research strategies and materials), the University Publications Office, and, specifically the IDS program. Student involvement in the formation and conduct of the Center will also be essential for success.

Please send pre-proposals to Jim Colbert, jcolbert@lander.edu, by May 8, 2015.