

**Commission on Undergraduate Studies and Policies**  
**Resolution 2014-15H**  
**Resolution to Revise Presidential Policy Memorandum No. 125 (University**  
**Core Curriculum/Curriculum for Liberal Education (CLE) (PPM 240))**

Recommended by the University Curriculum Committee for Liberal Education and the  
Commission on Undergraduate Studies and Policies:

Approved by CUSP:	January 26, 2015
First Reading by University Council:	February 23, 2015
Approved by University Council:	April 6, 2015
Approved by the President:	April 6, 2015
Effective Date for students entering:	Fall 2016 (or upon approval of Implementation plan, whichever occurs last)

WHEREAS, the State Code of Virginia established Virginia Polytechnic Institute and State University as a land-grant university with its mission to serve the people of the Commonwealth of Virginia, providing an education to prepare its graduates for leadership in their chosen field of work and as productive citizens; and

WHEREAS, national organizations, including the Association of American Universities (AAU), the Association of American Colleges and Universities (AAC&U), and the Association of Public and Land-Grant Universities (APLU), challenge universities to provide access to high quality, effective learning opportunities to develop students intellectual and civic capacities, thereby preparing them to live and work in a rapidly changing global world; and

WHEREAS, disciplinary accrediting organizations identify broad categories of knowledge and experience in the areas of oral and written communication, multidisciplinary problem-solving, ethical understanding and reasoning, societal and global awareness, and understanding of contemporary issues as essential elements of a high-quality undergraduate education; and

WHEREAS, educational research demonstrates that deep learning occurs when foundational learning experiences support increasingly challenging, integrated experiences within the context of disciplinary learning; and

WHEREAS, Virginia Tech's status as a research university positions it to provide undergraduate students with depth in disciplinary learning as well as integrated learning drawn from a broad range of disciplines; and

WHEREAS, Virginia Tech must demonstrate to its stakeholders, including students, parents, alumni, and accrediting bodies the value of all elements of the curriculum for its graduates; and

WHEREAS, Virginia Tech has not undertaken a comprehensive revision of general education requirements since the Core Curriculum inception in 1992; and

WHEREAS, the 2012-2018 Strategic Plan, "A Plan for a New Horizon," calls on the university community to modify the current Curriculum for Liberal Education to provide "strong foundations for the major course of study while facilitating the integration of a broad base of knowledge" and "to embrace alternate pathways to general education"; and

WHEREAS, constituents across campus including faculty, faculty committees, staff, and students were engaged in a multiyear process of information gathering, curriculum design and proposal development; and

WHEREAS, undergraduate students at Virginia Tech deserve a vibrant, flexible, and meaningful general education program, one that helps them to integrate learning for use throughout their lifetimes,

THEREFORE, BE IT RESOLVED that the University adopt the *Pathways General Education* curriculum for students entering fall 2016 or upon approval of the implementation plan (whichever occurs last) and thereafter as explained in the accompanying “Revision of General Education at Virginia Tech,” with guiding principles as follows:

1. That the mission statement and guiding principles of integration, inclusivity, and relevance be adopted as referenced in the proposal (pp. 4-5).
2. That the three pathways: distribution, Pathways Minors, and Alternative Pathways are approved as described (pp. 5-7).
3. That learning outcomes and corresponding indicators of learning be adopted as described (pp. 7-11).
4. That the credit hour requirements associated with each core learning outcome be as follows:
  - DISCOURSE: 9 credits--6 foundational + 3 advanced/applied writing and/or speaking courses (pp. 8, 11-12)
  - QUANTITATIVE AND COMPUTATIONAL THINKING: 9 credits—6 foundational + 3 advanced/applied (pp. 8, 12)
  - REASONING IN THE NATURAL SCIENCES: 6 credits (with an additional 2 lab credits for students in some majors) (pp. 9, 12)
  - CRITIQUE AND PRACTICE IN DESIGN AND THE ARTS: 6 credits—3 design + 3 arts OR 6 integrated design and arts (pp. 9, 12)
  - REASONING IN THE SOCIAL SCIENCES: 6 credits (pp. 9, 12)
  - CRITICAL THINKING IN THE HUMANITIES: 6 credits (pp. 9-10, 12)
5. That to support optimal integration of Ethical Reasoning and Intercultural and Global awareness in the curriculum, the goal is that every course approved to meet general education requirements incorporates learning in one or both of these areas (pp. 10-13) (no additional credit hours will be associated with these integrative outcomes).
6. That any course that meets the stated outcomes may be approved as a general education course with no arbitrary exclusions or restrictions against double-counting (pp. 11).
7. That the University Curriculum Committee for Liberal Education will develop specific guidelines for course approvals that will be shared with the university community via the 15-day review process. Upon responding to feedback received from the university community, UCCLE will present criteria to the commission (CUSP) for approval as outlined in the Course Approvals section on (p. 13).
8. That the University Curriculum Committee for Liberal Education, the Office of General Education, and the Office of the Provost will support continuity, stability, and transparency to maximize opportunities, use resources effectively, and reward the efforts of students and faculty.

## **Revision of General Education at Virginia Tech**

*Proposed by The University Curriculum Committee for Liberal Education (UCCLE)<sup>1</sup>*

Undergraduate students at Virginia Tech deserve a vibrant, flexible, and meaningful general education program, one that helps them to integrate their learning for use throughout their lifetimes. Over the years, faculty members have studied general education, and students have voiced their concerns. As the culmination of so much input, a new plan has emerged-- Pathways: General Education at Virginia Tech. This proposal describes a model that includes core and integrative learning outcomes to meet the learning needs of all students while also meeting requirements for university accreditation. The plan involves the development of a coherent program comprised of courses reflecting best practices in pedagogy and demonstrating evidence of efficacy.

This document describes the outcomes and learning indicators and includes a description of the proposed transition process and supporting infrastructure. The Pathways curriculum has the potential to become a signature program at Virginia Tech, enhancing the student experience and making this institution a leader among peers in providing a coherent and meaningful general education for undergraduates.

### **Rationale**

#### **Impetus for Change**

Nationally, a conversation regarding reform of general education has been ongoing for over a decade. The Association of American Colleges and Universities (AAC&U) has been at the forefront of this dialog with recommendations that include outcomes-based curriculum, access to high-impact practices for all students, development of civic and intellectual capacities, the connection of general education and the major, and integrative learning. AAC&U publications, including employer surveys, and Virginia Tech faculty participation at related workshops have greatly influenced the decision to revise this general education curriculum to align with those strategies that have been identified as best practices.

One consideration more recently defined nationally by AAC&U is the difference between general education and liberal education:

Liberal Education is an approach to learning that empowers individuals and prepares them to deal with complexity, diversity, and change. It provides students with broad knowledge of the wider world (e.g. science, culture, and society) as well as in-depth study in a specific area of interest . . . The broad goals of liberal education have been enduring even as the courses and requirements that comprise a liberal education have changed over the years. Today, a liberal education usually includes a general education curriculum that provides broad learning in multiple disciplines and ways of knowing, along with more in-depth study in a major. (Available at <https://www.aacu.org/leap/what-is-a-liberal-education>)

A student's integrative education includes the major, general education, and other studies. General education at Virginia Tech should be seen as one part of liberal education and named accordingly.

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<sup>1</sup> The name of this committee will be changed. Any use of "UCCLE" in this document refers to the faculty governance committee that oversees general education and reports to the Commission on Undergraduate Studies and Policies.

At Virginia Tech, the calls for change have emerged from various students, faculty and administrators.

The 2012-2018 Strategic Plan, “A Plan for a New Horizon,” includes this projection about general education:

Given the dynamic and unpredictable nature of the world in which our students will live, it is important to reexamine the effectiveness of our general education program. We must consider radical changes that will meet these goals. . . To this end, Virginia Tech will integratively evaluate and modify the current Curriculum for Liberal Education to embrace alternate pathways to a general education. . . (p. 14)

While the call for change in the Strategic Plan is recent, students and faculty have shared in workshops, surveys, focus groups, and committees for at least 12 years as they looked to revitalize general education. Students question the value of general education because the courses are disconnected and there is little sense of a coherent program. They wonder why they’re taking these courses and often choose courses based on open slots in their schedules--not because of interest or desire to complete an integrated set of courses.

Many faculty recognize that the current system includes excellent courses, but they agree with students that those courses are disconnected. The lack of coherence can undermine students’ long-term learning.

Additionally, the CLE is impossible to assess so that Virginia Tech can (1) assure and maintain high quality in general education and (2) meet the university’s obligations for assessment in order to maintain accreditation.

UCCLE (formerly the University Committee for the Core Curriculum) has spent countless hours organizing workshops, studying general education, and making recommendations. The following list includes examples of faculty involvement over time:

- 2002 -- The Provost funded a working group of faculty to study the Core Curriculum. Recommendations included broader consideration of the purpose, structure, and approach to the Core.
- 2004 – University-wide Mini-Retreat to Review, Refine and Revitalize the Core Curriculum – As a result, pilots were created for the 21<sup>st</sup> Century Integrative Studies Program.
- 2005 – Ad Hoc Committee on the Core Curriculum--including faculty, department heads and administrators--developed recommendations, described in the report: “Integrating Virginia Tech’s General (Liberal) Education into the Undergraduate Curriculum, calling for greater integration and synthesis among educational experiences.
- 2006 – “Pathways” designated as metaphor for the Virginia Tech undergraduate experience in an update to VT’s strategic plan
- 2010 –
  - AAC&U Symposium by AAC&U’s Susan Albertine, Senior Director of LEAP States initiative: “Trends in General Education for the 21st Century” – attended by 52 faculty from across VT.
  - Student and faculty surveys – Perceptions of General Education – Results reported to VT faculty and presented at AAC&U Conference, Chicago
  - UCCLE submitted recommendations to enhance the CLE and align with AAC&U learning outcomes.

- Report of the Undergraduate Strategic Plan Task Force addressed general education, recommending celebration of the value of gen ed, alternative paths, transparent funding, administrative structure, and assessment (Goals 30-34).
- 2011 – “Connecting Gen Ed, Liberal Learning, and the Major” – workshop at VT open to all faculty, presented by Paul L. Gaston, former Provost, Kent State University, co-author of AAC&U’s *Practical Approaches to General Education and Liberal Learning*
- 2012 – Proposal for Integrative General Education shared with VT faculty. Extensive responses from faculty across campus led to improved process for development of new Pathways plan.
- 2013-14 – Interdisciplinary faculty members of Curricular Planning Teams (Attachment 1) develop learning outcomes and indicators for proposed Pathways curriculum.
- 2014 -- April 21 Open House -- Draft outcomes and indicators shared with the university community. Feedback collected and disseminated to Curricular Planning Teams.
- 2014 – AAC&U’s 2014 Institute on General Education and Assessment, Burlington, VT – participation by 8 VT representatives who analyzed progress to date and developed plans to enlarge the circle of participation in the process and planning for approval, transition and implementation.

Over these 12 years--and even since the Core Curriculum was first implemented--many departments have updated their undergraduate degree programs numerous times. After much study and reflection, it became clear that Virginia Tech should demonstrate the same responsiveness in general education to changes in student learning needs, disciplinary emphasis, assessment, and high-impact practices in pedagogy.

### **Considerations for New General Education**

A vision for a more robust and meaningful general education grew with numerous considerations and challenges as part of an eventual plan. A revised program must meet the following criteria:

- Meet accreditation requirements for general education with specified areas of study and evidence of student learning.
- Build a curriculum focused on measurable learning outcomes.
- Create a structure to promote both foundational and integrated learning.
- Infuse learning-centered pedagogies across the curriculum.
- Retain and expand opportunities for exploration by students.
- Maintain access for transfer students, non-traditional students, and students with Advanced Placement, International Baccalaureate, or dual enrollment credit.
- Respect time to degree.
- Ensure flexibility, scalability, and continuous improvement.
- Align with best practices identified by the AAC&U.

The following proposal for a revised general education program meets these criteria and includes a discussion of mission, guiding principles, outcomes, hours, options, the transition and implementation process, and administration and support.

## **Pathways: General Education at Virginia Tech**

### **Mission**

As a central component of the undergraduate experience at Virginia Tech, the Pathways curriculum will guide students to examine the world from multiple perspectives and integrate their knowledge across disciplines and domains of learning through a hands-on, minds-on approach.

### **Guiding Principles for the Enhancement of General Education**

The Pathways curriculum will provide a breadth of learning drawn from various disciplines and will be developed in accordance with the following principles:

**1. Integration.** The promotion of integration in students' learning is crucial to students' ability to create meaning, explore connections, and build knowledge and skills for their academic, professional, civic, and personal lives. Students will meet many of the learning outcomes by taking sequenced courses that build upon one another, adding a dimension of depth to the curriculum. As they participate in one of three paths through general education, undergraduates will have opportunities to make meaning of their general education curriculum through the integration of diverse ways of knowing, recognizing that the whole is truly greater than the sum of its parts. The incorporation of the integrative learning outcomes--Ethical Reasoning and Intercultural and Global Awareness—throughout the curriculum will further enable students to connect the courses and identify various perspectives on these themes. This ability to integrate new learning into their ways of seeing the world will help students build a competency they will need for the rest of their lives.

**2. Inclusivity.** The Pathways curricular structure will address the needs and challenges of populations of students and acknowledge the diverse paths they have taken to Virginia Tech, including such groups as first-semester freshmen, first-generation college students, transfer students, and veterans. In turn, the Pathways curriculum will prepare these diverse groups of students to become contributors to the global society in which they will live and work. To support this effort, inclusive pedagogies that foster deep learning in all students will be adopted. Extending this principle, all students will be encouraged to examine issues of diversity and inclusion, such as gender, race, socio-economic status, and sexual orientation. This will be accomplished through the integration of outcomes in intercultural and global knowledge across the Pathways curriculum.

**3. Relevance.** The Pathways curriculum will be relevant to students' personal development, helping them to integrate new learning into their lives for current and long-term application. The curriculum will challenge undergraduates in fundamental areas of learning, which will be relevant to major courses and activities across the undergraduate years and beyond. Students will also develop the skills they will need for success in every area of their lives: communication, problem-solving, critical thinking, ethical behaviors, inquiry, and creativity.

In order to accomplish these principles, the Pathways model will be outcomes-based and will focus on measures of students' learning across disciplinary boundaries. The curriculum will be transparent and explicit in its outcomes, which have been developed through broad

participation by faculty. Such outcomes are widely validated by employers, educators and alumni. To further support the principles, the Pathways curriculum will endorse the incorporation of learning-centered pedagogy and assessment of all courses. The curriculum will be designed with an infrastructure that is responsive to student need, measures of learning, disciplinary changes, and new research related to general education. Robust assessment of the Pathways curriculum at the level of the course and the program is necessary to determine program effectiveness and to identify areas for attention and improvement. The goal of this assessment will be the continuous improvement of student learning. The curriculum will also be responsive to research about student learning that may foster changes in pedagogical approaches to teaching and learning, requiring new calls for faculty development or even changing guidelines.

### **Learning Outcomes -- Overview**

The Pathways curriculum includes six core learning outcomes and two integrative learning outcomes (LOs). The outcomes reflect broad knowledge areas for study, and are supported by indicators of learning. These indicators describe the observable behaviors that students will demonstrate as they pursue breadth and/or depth related to particular outcomes. The core LOs reflect the most traditional distribution model of general education and could be met either at Virginia Tech or with credits earned via transfer, Advanced Placement, or International Baccalaureate credit. The integrative outcomes are those that could be met along with a core LO in a particular course.

#### **Core Learning Outcomes**

- Discourse
- Quantitative and Computational Thinking
- Reasoning in the Natural Sciences
- Critique and Practice in Design and the Arts
- Reasoning in the Social Sciences
- Critical Thinking in the Humanities

#### **Integrative Learning Outcomes**

- Ethical Reasoning
- Intercultural and Global Awareness

### **Options for Exploration**

Students might pursue the Pathways curriculum in one of three options: the traditional distribution model, the Pathways Minor, or the Alternative Pathway. All three of these options were recommended in the 2005 report of the Provost's Ad Hoc Core Committee Steering Committee and have been requested by students and faculty alike. The thematic or more flexible options have been operating in practice to provide students meaningful and cohesive general education experiences. By formally articulating and supporting these options, the University will be positioned to increase access to these programs so that more students can participate.

#### **Pathway I – Distribution Model (traditional)**

This model is the one most like Virginia Tech's Curriculum for Liberal Education, one in which students choose a certain number of courses from certain categories. Students transferring from community colleges will find that many of their transferred courses will be equivalent to VT courses and will count toward meeting the core learning outcomes. They may or may not have courses that will help them meet the integrative learning outcomes, but such courses would be available to them at Virginia Tech in the major or in general education.

### **Pathway II -- Pathways Minors**

Cross-disciplinary Pathways minors will enable students to experience the breadth of learning espoused by a general education program as well as depth and integration of learning not easily afforded through discrete courses that address specific general education learning outcomes. Pathways minors offer students a cohesive and/or thematic pathway through a significant portion of their general education curriculum. Earning a minor should provide tangible and recognizable value for a student, particularly when the minor is chosen thoughtfully to complement learning in the student's major field of study. All students undertaking Pathways Minors must still complete the remainder of the Pathways credit hours and outcomes not covered by the minor.

**Criteria for Pathways Minors** – A Pathways minor will meet the following guidelines:

- Consist of at least 18 credits (at least 6 at the 3000-4000 level).
- Be administered by an academic unit (department or college). Multi-college programs are encouraged and expected to be the norm, but one unit must assume administrative responsibilities for scheduling courses and enrolling students.
- Include required coursework approved to meet at least three different core general education outcomes
- Meet the integrative outcomes of a) ethical reasoning and b) inclusive, intercultural and global awareness
- Present no barriers to admission. All undergraduate students must be eligible to enter the minor.
- Include a capstone/summative experience in which students will apply and reflect upon their general education demonstrating creativity and integration of learning.
- Secure approval by UCCLE as a Pathways minor.

### **Pathway III-- Alternative Pathways**

Students have long called for more flexibility in meeting the goals of general education. Alternative Pathways will afford Virginia Tech undergraduates creative opportunities to meet general education outcomes through integrated experiences that incorporate high-impact learning practices such as study abroad, undergraduate research, internships and service learning. Students who choose an Alternative Pathway must also meet any learning outcomes not addressed by that pathway.

**Criteria for Alternative Pathways** – An Alternative Pathway must meet the following guidelines:

- Be overseen by a faculty member who reviews student progress toward meeting general education outcomes. For some experiences (e.g. study abroad), the faculty member may be leading a program in which multiple students participate and which may be offered repeatedly.



- Meet at least three different core general education outcomes and the two integrative outcomes.
- Include a capstone/summative experience where students will apply and reflect upon their general education demonstrating creativity and integration of learning.
- Be described in a plan submitted for approval in advance of the learning experience. The Office of General Education will review proposals for Alternative Pathways and forward recommendations to UCCLE. UCCLE will vote on approvals.
- Be verified as completed by the participating faculty member. (This is a similar process as used in an independent study.) Students will share final reports, projects or portfolios with the Office of General Education.

### **Detailed Learning Outcomes and Indicators**

The language of the core learning outcomes and indicators was developed in concert with Curricular Planning Teams and various faculty across campus, including those who might offer related courses and those whose students might be taking those courses. Academy of Teaching Excellence members and Diggs Teaching Scholars comprised a significant part of the membership of the Curricular Planning Teams (36%) as well as the membership of UCCLE (38% of current membership).

The hours determined for each outcome reflect the minimum number of hours that all students will devote to that outcome. Students may certainly choose to take more hours in general education. As part of their majors, students will obviously be required to complete more hours related to certain outcomes. For example, English majors will take more hours in discourse, science and engineering majors will certainly take more hours in the outcome related to the natural sciences.

### **Considerations for all Learning Outcomes**

As always, general education could include courses from any department; consequently, no specific departments or disciplines are listed along with the outcomes below. All departments have the opportunity to participate by submitting courses that will meet the criteria of general education:

- Support the mission and principles of general education
- Meet the learning outcomes and indicators
- Emphasize teaching and learning
- Plan for assessment for university-level program evaluation and also for SCHEV, SACS, and other accrediting bodies

Additionally, the following considerations apply to all LOs:

**Advising.** Where options are available for ways students might meet the LOs, those options might be defined or suggested by programs in the major and/or advisors.

**Advanced/Applied courses.** In the following descriptions of outcomes and indicators, an advanced/applied course is considered to be one at the 2-4000 level that builds on a previous course. For example, a student might take English 1105-1106 at the foundational level and then take a writing or speaking course (2-4000 level) that builds on that knowledge, extends the skillset, and provides practice. The indicators may be met across sets of courses in a curriculum.

**Language.** Achievement in general education builds on a necessary foundation of English language proficiency. Courses taught in a language other than English and meeting the criteria of general education may be included.

### **Core Learning Outcomes and Indicators**

**Discourse** is the exchange of ideas in writing or speaking, adapted to specific contexts and developed through discovery, analysis, creation, presentation, and evaluation. A student who is competent in discourse demonstrates the ability to reason, write, and speak effectively for academic, professional, and public purposes. In meeting the Discourse LO, students will demonstrate increasing proficiency over the years. All learning indicators would be met in all courses, but expectations for proficiency would be heightened for advanced/applied courses.

**Credit hours:** 9 credits--6 foundational + 3 advanced/applied writing and/or speaking courses

#### **Indicators of Learning**

1. Discover and comprehend information from a variety of written, oral, and visual sources.
2. Analyze and evaluate the content and intent of information from diverse sources.
3. Develop effective content that is appropriate to a specific context, audience, and/or purpose.
4. Exchange ideas effectively with an audience.
5. Assess the product/presentation, including feedback from readers or listeners.

**Quantitative and Computational Thinking** is creative engagement with the world by the manipulation of precisely defined symbolic representations. Quantitative thinking is the formulation of questions that can be addressed using mathematical principles, leading to answers that include reliable and usable measures of accuracy. Computational thinking is the ability to conceive meaningful, information-based representations of the world that can be effectively manipulated using a computer. Courses **or course sequences** addressing this outcome must meet a majority of the learning indicators. Only the combination and integration of quantitative and computational courses will serve to meet this learning outcome.

**Credit hours:** 9 credits--6 foundational + 3 advanced/applied

#### **Indicators of Learning**

1. Explain the application of computational or quantitative thinking across multiple knowledge domains.
2. Apply the foundational principles of computational or quantitative thinking to frame a question and devise a solution in a particular field of study.
3. Identify the impacts of computing and information technology on humanity.
4. Construct a model based on computational methods to analyze complex or large-scale phenomenon.
5. Draw valid quantitative inferences about situations characterized by inherent uncertainty.
6. Evaluate conclusions drawn from or decisions based on quantitative data.

**Reasoning in the Natural Sciences** involves the acquisition of the detailed knowledge of one or more of the natural **sciences**, hands-on experience with how science is conducted, what science can and cannot tell us about the universe, and the relationship between science and society. Courses **or course sequences** addressing this outcome must meet a majority of the learning indicators.

**Credit hours:** 6 credits (with an additional 2 lab credits for students in some majors)

**Indicators of Learning**

1. Explain the foundational knowledge of a particular scientific discipline.
2. Apply principles and techniques of scientific inquiry.
3. Evaluate the credibility and the use/misuse of scientific information.
4. Analyze the reciprocal impact of science and society.

**Critique and Practice in Design and the Arts** involves a hands-on, minds-on approach by which students acquire the intellectual tools for a richer understanding and knowledge of the process, meaning and value of the fine, applied and performing arts and creative design. This outcome recognizes that the creative design process can and should be applied to a broad range of disciplines. Courses **or course sequences** addressing this outcome must meet a majority of the learning indicators. To meet this learning outcome, students will study the arts and design thinking in two courses: either 1 design and 1 arts course, or 2 integrated courses.

**Credit hours:** 6 credits--3 design + 3 arts, or 6 integrated design and arts

**Indicators of Learning**

1. Identify and apply formal elements of design or the arts.
2. Explain the historical context of design or the arts.
3. Apply interpretive strategies or methodologies in design or the arts.
4. Employ skills, tools, and methods of working in design or the arts.
5. Produce a fully developed work through iterative processes of design or the arts.

**Reasoning in the Social Sciences** is the utilization of quantitative and qualitative methods to explain the behavior and actions of individuals, groups, and institutions within larger social, economic, political, and geographic contexts. Courses meeting this outcome will help students to understand that they are a small part of a larger global community and to engage with diverse individuals, groups, and ideas that have shaped or continue to shape the worlds they inhabit. Courses **or course sequences** addressing this outcome must meet a majority of the learning indicators.

**Credit hours:** 6 credits

**Indicators of Learning**

1. Identify fundamental concepts of the social sciences.
2. Analyze human behavior, **social institutions and/or patterns of culture** using theories and methods of the social sciences.
3. Identify interconnections among and differences between social institutions, groups, and individuals.
4. Analyze the ways in which values and beliefs relate to human behavior and social relationships.

**Critical Thinking in the Humanities** involves the interpretation and analysis of texts and other created artifacts to understand ideas, values, and identities in various spatial,

cultural, and temporal contexts. Courses **or course sequences** addressing this outcome must meet a majority of the learning indicators.

**Credit hours:** 6 credits

#### **Indicators of Learning**

1. Identify fundamental concepts of the humanities.
2. Analyze texts and other created artifacts using theories and methods of the humanities.
3. Interpret texts and other created artifacts within multiple historical, intellectual, and cultural contexts.
4. Synthesize multiple complex sources and create a coherent narrative or argument.

### **Integrative Learning Outcomes and Indicators**

These learning outcomes are integrative in that they are woven throughout the curriculum. The need for students to have knowledge and skills in these areas is crucial to all aspects of their lives. Students will develop the capacity to recognize these concepts as they apply to any discipline, thus helping them to consider and connect various perspectives.

To support **optimal** integration, **the goal is to have** every Pathways course address at least one of the Integrative Outcomes. This infusion of the Integrative Outcomes into general education will signal the importance of these concepts to students at Virginia Tech, and the concepts will be further highlighted by discussions that already exist in the majors. Pathways Minors will also address both outcomes.

Many existing courses will be immediately ready to meet one of these outcomes. However, given that this aspect of Pathways may require more significant course redesign for some faculty, there will be a two-year **period during which those faculty will develop strategies to include these outcomes meaningfully in their general education courses. Special attention will be paid to those courses in which integration of these outcomes might be perceived as particularly challenging.** Courses not initially ready to meet one of these outcomes may be provisionally approved for inclusion in general education so that there will be no interruption in availability of necessary courses to students. **Within two years of the implementation of the curriculum,** courses can be permanently approved through demonstration that they are meeting one of the outcomes.

Faculty will be supported in integrating these outcomes into general education courses through a suite of resources including teaching modules and professional development opportunities.

The language of the integrative learning outcomes is based on the standards of the Association of Association Colleges and Universities as shown in the VALUE Rubrics (available: <http://www.aacu.org/value/rubrics>).

**Ethical Reasoning** is **the principled evaluation of moral and political beliefs and practices.** In today's complex and diverse world, ethical behavior requires more than just the desire to do the right thing. **Foundational learning of ethical theories, issues, and applications provides tools that enable students to deliberate and to assess for themselves claims about ethical issues in their personal, public, and professional lives.**

Courses addressing this outcome must meet a majority of the learning indicators.

**Credit hours:** This learning outcome will be met in conjunction with Core Outcomes. No extra hours will be necessary.

### **Indicators of Learning**

1. Explain **and contrast relevant** ethical theories.
2. Identify ethical issues in a complex context.
3. **Articulate and defend positions on ethical issues in a way that is both reasoned and informed by the complexities of those situations.**

**Intercultural and Global Awareness** supports effective and appropriate interaction with a variety of people and different cultural contexts. Considerations of diversity and inclusion are crucial for students in an increasingly complex world. An important application of this learning is the critical analysis of global systems and legacies and their implications for people's lives and the earth's sustainability. Courses addressing this outcome must meet a majority of the learning indicators.

**Credit hours:** This learning outcome will be met in conjunction with Core Outcomes. No extra hours will be necessary.

### **Indicators of Learning**

1. Identify advantages **and challenges** of diversity and inclusion in communities and organizations.
2. Interpret an intercultural experience from both one's own and another's worldview.
3. Address significant global challenges and opportunities in the natural and human world.

### **Rationale for Credit Hours Required**

The plan for Pathways is projected at 42 hours, which is necessary for students to accomplish the breadth and depth they need for their current lives as students and their future lives as professionals, citizens, and family members. With the new focus on learning outcomes, however, students will be able to meet some of the outcomes in major.

Even in 1992, faculty saw the need for more hours in general education. At that time, the Core Curriculum was updated to add Area 7 and was approved to expand to 42 hours. (See Policy memo #125.) Although this expansion has not yet occurred, a 42-hour general education program is already approved.

In the Pathways curriculum, some course work may meet more than one outcome. Although that double-counting of courses will be possible, the goal of general education will still be to provide a breadth of experience for students across disciplines. A review of current major checksheets indicates that the new requirement for hours will not delay time to degree.

Essentially, the learning outcomes and associated hours assure that every Virginia Tech student has the opportunity to meet these outcomes. Some may already be meeting an outcome in a course required in the major (advanced Discourse, for example), but others may not have that opportunity.

The hours for specific outcomes were developed with the following considerations for the core and integrative learning outcomes.

**Discourse (9 credit hours)** – This learning outcome was designed to include 2 foundational writing courses and 1 writing or speaking course at the 2-4000 levels. Many students earn credit for those foundational courses through AP, IB, dual enrollment, or other community college credit. In the current CLE, they might never take a class in discourse at VT or above that 1000 level. In 1992, that gap was addressed with a plan for writing-intensive (WI)

courses (an additional 6 hours – for a total of 12 hours in Writing and Discourse), but that plan was changed in 2004 (Policy Memo #231), when it was determined that some of the WI courses were barely meeting the WI guidelines. The Pathways plan puts the emphasis back on courses that are designed to teach writing or speaking, with opportunities for feedback and practice. Many majors already require such a course; that course would now be integrated with general education and would not require new resources.

**Quantitative and Computational Thinking (9 credit hours)** – In a similar fashion, the Curricular Planning Teams suggested 2 foundational courses and 1 advanced/applied course. The CLE required 6 credit hours in Quantitative Reasoning, but no course in Computational Thinking. This extension of the requirement is based on recommendations from the Curricular Planning Teams, the strategic plan, and a widespread recognition that access to data and powerful tools for its analysis and manipulation have increased exponentially in every field of study in the years since Virginia Tech's general education curriculum was revised.

**Reasoning in the Natural Sciences (6 credit hours for all students + 2 lab hours for students in some majors)** – The Pathways curriculum would require 2 courses of all students to meet this outcome. These courses may be lecture, lab or a combination of both, as long as students are engaged in science to meet the indicators of learning. Students in some majors may need an additional 2 hours of lab credit in association with the 6 hours required of all students.

**Critique and Practice in the Design and the Arts (6 credit hours)** – The requirement for this LO expands the former requirement by hours and content. The CLE requirement for Creativity and Aesthetic Experience was a single course of 1 or 3 credit hours. In order to achieve a rigor of learning in this outcome that is parallel to the others, meet the outcomes articulated in the current Virginia Tech strategic plan, and achieve parity with Virginia (SCHEV) approved institutions, the Curricular Planning Team determined that a minimum of 6 credit hours would be necessary. The expanded content is reflected in the "design thinking" that is expected as part of this outcome.

**Reasoning in the Social Sciences (6 credit hours)** – This learning outcome is similar to the current CLE requirement. Students might meet this outcome with 2 foundational courses in different disciplines or with one foundational and one advanced in the same discipline.

**Critical Thinking in the Humanities (6 credit hours)** – This learning outcome is similar to the current CLE requirement. Students might meet this outcome with 2 foundational courses in different disciplines or with one foundational and one advanced in the same discipline.

**Ethical Reasoning (0 additional credit hours)** – This learning outcome would be combined with other Pathways courses and would require no additional credit hours. Clearly, competence in ethical reasoning can't be achieved in just one course. Students who complete their general education requirements at Virginia Tech will receive maximum benefit from the incorporation of this LO with other Pathways courses. Transfer students who may have finished requirements for a distribution model at another institution would have the opportunity to encounter these concepts in an FYE course or in courses in some majors that already focus on ethical reasoning.

**Intercultural and Global Awareness (0 additional credit hours)** – This learning outcome would be combined with other Pathways courses and would require no additional credit hours. Clearly, competence in intercultural and global awareness can't be achieved in just one course. Students who complete their general education requirements at Virginia Tech will receive maximum benefit from the incorporation of this LO with other Pathways courses. Transfer students who may have finished requirements for a distribution model at another institution would have the opportunity to encounter these concepts in an FYE course or in courses in some majors that already focus on intercultural and global awareness.

### **Approvals, Transition and Implementation**

The following time frame is feasible, but certainly depends on the time the proposal needs to move through governance.

#### **2014-2015**

- Discussions continue with faculty and students.
- UCCLE drafts and approves formal proposal in fall 2014.
- Traditional governance process follows.

#### **Spring 2015-Summer 2016**

During this timeframe, the CLE will be maintained while the development of the Pathways curriculum will continue. All faculty development resources will be available to support the revision of existing courses and the development of new and innovative courses. The Office of General Education will offer workshops and one-on-one consulting for faculty advisors, addressing course proposals, checksheet revisions, and any other issues related to the transition of general education.

**Course approvals.** UCCLE will develop specific guidelines for course approvals that will be shared with the university community via the 15-day review process. Upon responding to feedback received from the university community, UCCLE will present criteria to the commission (CUSP) for approval. The approval of courses will continue to be made by UCCLE, a faculty committee, as part of traditional University governance during this transition time and beyond. UCCLE will rework the criteria for those proposals based on Pathways learning outcomes and indicators.

Any course that meets general education criteria can be approved for the Pathways curriculum. The approval process will include submission of information about the following:

- The outcomes and indicators addressed in the course
- How the outcomes are interpreted in the specific context of the course
- How students will meet the outcomes (examples of activities and pedagogies)
- How students will be evaluated as having met the outcomes

The process for course approvals will be streamlined so that courses are in place for incoming freshmen in Fall 2016. UCCLE will give the highest priority to the courses that will be required for those incoming freshmen. For CLE courses converting to Pathways, UCCLE can manage the conversion proposals in an expedited fashion. For new courses, there is the potential establishment short-term ad hoc committee, comprised of UCCLE and UCC members, to expedite the approval process.

## **Fall 2016 – Transition Considerations**

Students who enter in Fall 2016 will have access to the new curriculum and the advising resources to help them make appropriate choices.

Students who entered VT previously will be able to complete the CLE. Since the distribution model will continue to exist in a similar format, courses will be available to meet the current areas of the CLE. Courses in Pathways will be identified as substitutions for any classes that are no longer part of general education. The Office of General Education will provide guidelines for students who are trying to finish CLE requirements once Pathways is implemented. Support will be offered to advisors, and a system will be set in place with the Registrar's Office so that students will not be burdened by the change.

## **Administration and Support**

With oversight by UCCLE and the new Office of General Education, supported by the Office of the Provost, the Pathways curriculum will provide continuity, stability, and transparency to maximize opportunities, use resources effectively, and reward the efforts of students and faculty. UCCLE will continue to approve course proposals, to monitor the quality of general education, and to report to CUSP. However, this faculty committee does not have the resources to coordinate the operations of such a large program without support. The Office of General Education and, more specifically, the Coordinator of General Education will offer that support, responding to student questions, tending the website, promoting general education, connecting faculty with resources, and clarifying the path for course proposals. The enhanced infrastructure will assure that the Guiding Principles of Pathways are upheld.

UCCLE does not propose or administer a budget for general education. This plan is built on the understanding that the university will provide sufficient resources for professional development, advising, and instruction to implement the proposed curriculum. Resource analysis should be part of regular assessment.

## **Responsive governance**

An efficient governance structure will be developed to facilitate timely implementation of new courses and programs and to encourage an influx of new individuals and programs as contributors to general education. The curriculum must also be responsive to research about student learning that may foster changes in pedagogical approaches to teaching and learning, requiring new calls for faculty development or even changing guidelines. Regularly scheduled review of general education will allow more timely response to changing needs.

## **Scalability**

Beyond a pilot phase, the curriculum must be scalable so that all students can partake of the best practices that are under development. Strategies toward scalability include effective large-classroom pedagogies, flipped and hybrid classes, and team/peer-based learning. The New Classroom Building, which will expand the flexible learning capacity on campus, can support these pedagogies for some general education courses.

## **Learning-Centered Pedagogies**

To foster deep, meaningful, and integrated learning within students engaged in the general education curriculum, learning-centered pedagogical approaches to course design, development, and delivery that are supported by empirical research will be emphasized and



encouraged. These learning-centered pedagogical approaches may vary across knowledge domains, course levels, delivery methods, and faculty members, respecting differences in curricular outcomes and student needs; yet, all of these approaches will focus on actively engaging students in the hands on minds on learning process, with the efficacy of the approaches determined by growth in student learning and development, broadly defined.

### **Faculty development**

Those developing and implementing the Pathways curriculum must be not only be informed about inclusive pedagogies that foster deep learning in all students must be adopted, but they must also be informed and appreciative of the diversity of our undergraduate population. Resources related to pedagogy, assessment, and technology will be made available so that faculty are supported in their efforts to provide the most effective courses.

### **Faculty rewards**

Faculty who teach in general education must be provided rich professional development, recognized for their contributions to general education and honored publicly for excellence. A reward structure for those who teach in general education is essential for instilling a sense of value.

### **Innovation**

Pathways Scholars will be supported and celebrated as pioneers for the new curriculum as they develop new offerings in general education. Infrastructure will also be developed to support pilot courses offered by other faculty so that innovative programming has a chance to succeed.

### **Assessment**

The university will offer support for cyclical assessment, review, and updating of general education for consideration by UCCLE and CUSP. While outcomes will be assessed as part of general education courses, this assessment will not duplicate any assessment already conducted in major courses that also meet the LOs of the Pathways curriculum.

Assessment of student learning within the new general education curriculum will leverage best practices associated with a learner-centered paradigm. A learner-centered approach to assessment:

- Acknowledges learning as a complex process that results in a change in knowledge, beliefs, behaviors, and attitudes that unfolds over time;
- Helps students come to understand that learning is not something that is done to them; instead, to become independent lifelong learners, students must take full responsibility for their own learning.
- Not only gathers evidence to monitor student learning, but also promotes student learning through the judicious use of authentic, course-embedded assignments as sources for assessment data;
- Honors the autonomy, academic freedom, and professional judgment of faculty as they are most directly responsible for the construction of the learning environment;
- Gathers information from multiple and diverse sources in order to develop a deep understanding of what students know, understand, and can do with their knowledge as a direct result of their general education experience;

- Utilizes appropriately rigorous methods for collecting data to ensure that the resulting assessment information is accurate, dependable, meaningful, and appropriate; and
- Culminates when results are used to improve subsequent learning.

This type of assessment is already implemented in many of Virginia Tech's academic programs, many of which may serve as exemplars for the new general education curriculum. While the specifics of the assessment process are not yet defined, the following criteria will shape the development of that process:

- The assessment process will be focused on program improvement, transparent in nature, and developed in collaboration with faculty teaching in the general education curriculum.
- To the extent possible, assessment of general education will occur in tandem with faculty grading of student work in order to streamline and connect assessment to the teaching and learning taking place within each general education course.
- Where appropriate – such as within in-major courses that count for general education requirements – assessment of general education outcomes and major/program outcomes may be one in the same to avoid redundancy.
- Where appropriate, those coordinating general education assessment will seek out opportunities to share data in support of external accountability efforts (e.g., professional and/or disciplinary accreditation efforts) and internal continuous improvement cycles (e.g., AQI).
- Course-level assessment data will be aggregated across courses to provide information at general education program outcome level.
- Virginia Tech will provide appropriate technological support and structures to ensure the seamless communication of assessment data from the course level to the program outcome level. This technology will ensure that faculty are not over-burdened by the mechanics or logistics of assessment work, but instead are able to focus on the substantive work of teaching and learning.
- Virginia Tech will provide appropriate professional development support to faculty regarding teaching, learning, and assessment within general education courses with multiple “access” or “entry” points to this support (e.g., web resources, short podcasts, faculty workshops, etc.)

### **Support for advisors and students**

Students and advisors will have access to current information via website and direct contact with the Office of General Education. Resources will be provided, including workshops and lists of approved courses and minors (catalog, website, etc). The new Pathways plan will be mapped against CLE to ease transition and provide information about substitutions. The Office of General Education will also promote general education and its options to incoming students.

### **Infrastructure quality**

The Office of General Education will also maintain an advisory group to facilitate the infrastructure, including representatives from UCCLE and some of the programs listed below.

Support for various needs of faculty and departments in general education is also available through existing programs that will work in partnership with the Office of General Education:

- Center for Instructional Development and Research (CIDER)
- Office of Assessment and Evaluation
- University Libraries
- Technology-enhanced Learning and Online Strategies (TLOS) and Networked Learning Initiatives (NLI), a unit within TLOS
- Diversity Development Institute
- Graduate School (in support of graduate students who teach in general education)
- University Academic Advising Center

### **Conclusion**

This proposal for revised general education meets the criteria envisioned early on by so many stakeholders. Students will be engaged in a meaningful program, faculty members will have the opportunity to help students integrate their learning, and Virginia Tech will use the Pathways curriculum as an enticement for new students who will choose this university not only for the high quality of its majors, but also for the high quality of its general education program.

## **Attachment 1: Select Participants**

While people have been working toward a new general education for years, this list includes only those who have most recently shared their expertise to support this effort, including members of the Curricular Planning Teams, UCCLE, and Pathways Scholars. Even currently, other faculty have provided input through various committees and colleges.

### **Curricular Planning Teams, 2013-14**

The teams were comprised of faculty across disciplines, who worked on outcomes related to their own disciplines or related to outcomes their students would need to meet. Faculty were invited to participate due to their involvement in general education, their current participation with UCCLE, and/or their standing as Diggs Scholars (DS) or members of the Academy of Teaching Excellence (ATE). Diggs and ATE faculty have earned university-wide recognition based on their dedication to teaching and learning. The membership also included two members of Faculty Senate (FS). Team members are listed below along with their departments and designations. Names of co-chairs are underlined.

#### **Quantitative Thinking**

Peter Haskell (MATH)  
Art Keown (FIN), UCCLE, ATE  
Mike Ellerbrock (AAEC), ATE  
Nicholas Polys (ARC)  
Eric Lyon (MUS)  
Jane Robertson (STAT)  
Don Orth (FIW), UCCLE, DS, ATE, FS

#### **Scientific Reasoning**

Richard Walker (BIOL)  
John Chermak (GEOS)  
Jeannine Eddleton (CHEM), ATE  
Mark Barrow (HIST), ATE  
Sarah Karpanty (FIW)  
David Schmale (PPWS), ATE  
Renee Selberg-Eaton (HNFE)  
Stephen Biscotte (Gen Ed)

#### **Humanistic and Social Analysis**

Anisa Zvonkovic (HD)  
Kurt Hoffman (PSYC)  
Matthew Gabriele (RLCL)  
Kwame Harrison (SOC), DS  
Greg Tew (ITDS), ATE  
Brian Murphy (FIW), DS  
Sheila Carter-Tod (ENGL), UCCLE  
Jill Sible, DS, ATE

#### **Critique & Practice in Design & the Arts**

Kathryn Albright (ARCH)  
Ben Knapp (ICAT)  
Alan Weinstein (MUS), ATE  
Greg Justice (TA), ATE  
Jack Lesko (ENGR)  
Kevin Concannon (SoVA)  
Barbara Leshyn/Kraft (HORT)  
Ed Dorsa (IDS)  
Matthew Volmer (ENGL), ATE  
Ann-Marie Knoblauch (ART)

#### **Computational Thinking**

Barbara Ryder (CS)  
Tom Ewing (HIST)  
Dennis Kafura (CS)  
Liesl Baum (ICAT)  
Tom Martin (ECE), DS  
Lydia Patton (PHIL)  
John Simonetti (PHYS), ATE  
Marie Paretti (ENGE), UCCLE  
Shelli Fowler (TLOS), DS

#### **Discourse**

Marlene Preston (COMM), UCCLE, ATE  
Patty Raun (ART)  
Quinn Warnick (ENGL)  
Willie Jester (PCOB)  
Alma Robinson (PHYS)  
Vickie Mouras (CEE)  
Carolyn Meier (Libraries), UCCLE

## **University Curriculum Committee for Liberal Education (UCCLE) 2014-15**

### **Administrative Representatives**

Office of the Provost: Jill Sible, Stephen Biscotte

Office of Assessment and Evaluation: Steve Culver, Kate McConnell,

Student Affairs: Rick Ferraro

### **Faculty Representatives:**

Sheila Carter-Tod, English

Aarnes Gudmestad, Liberal Arts and Human Sciences

Art Keown, Business

Ann-Marie Knoblauch, Architecture and Urban Studies

Carolyn Meier, University Libraries

Bob Oliver, Natural Resources and Environment

Don Orth, Fish and Wildlife Conservation (Faculty Senate)

Marie Paretti, Engineering

Michel Pleimling, Science

Marlene Preston, Communication

Renee Selberg-Eaton, Agriculture and Life Sciences

Rob Stephens, Liberal Arts and Human Sciences (CUSP)

Dan Thorp, History (Faculty Senate)

**SGA Representatives:** Kylie Gilbert, Stephen Hensell,

**Invited Guest:** Kimberly Smith, University Studies, University Academic Advising

## **Pathways Scholars**

Eight faculty members were selected through a university-wide application process as 2014 Pathways Faculty Scholars, a new role that is part of Virginia Tech's initiative to reinvent its general education curriculum.

John Chermak, associate professor of practice in geosciences, Science

Sean Conaway, instructor of English, Liberal Arts and Human Sciences

Ben Jantzen, assistant professor of philosophy, Liberal Arts and Human Sciences

Dennis Kafura, professor of computer science, Engineering

Ann-Marie Knoblauch, associate professor of art history, School of Visual Arts,

Gyorgyi Voros, senior instructor of English, Liberal Arts and Human Sciences

Alan Weinstein, associate professor of music, Liberal Arts and Human Sciences

Zac Zimmer, assistant professor of Spanish, Liberal Arts and Human Sciences

TO: Members of University Council  
FROM: Members of UCCLE  
Marlene M. Preston, Chair  
DATE: March 30, 2015

SUBJECT: Revision of Virginia Tech's General Education: Pathways

Thank you for your consideration of the Pathways Plan, approved by the University Curriculum for Liberal Education (UCCLE) and the Commission on Undergraduate Studies and Policies (CUSP). This memo was approved by all members of UCCLE (Appendix A).

In response to expressed interest in the creation of the plan, this memo clarifies and contextualizes the process by which the Pathways Plan was conceived and written. As you are aware, the plan sent forward by UCCLE resulted from over ten years of thoughtful discussion, writing and revision in dialogue with faculty, students and staff across the university. Over the course of the past year and a half, in particular, as the committee developed the document, we received input from hundreds of faculty across the university, all College-level curriculum committees and Deans, Faculty Senate, and numerous student representatives.

Components of the plan emerged from this extensive dialogue as well as from the commitment to meet the changing needs of Virginia Tech students. Those components include the following:

- **Sound guiding principles to enhance students' immediate and long-term learning--** Integration, Inclusivity, Relevance. Across all our discussions with students and faculty, these issues emerged repeatedly as essential to the proposed revision.
- **Learning-outcomes-based curriculum to enable the University to evaluate and promote the efficacy of the program--** Learning outcomes, as advocated by the Association of American Colleges and Universities (AAC&U) and UCCLE since 2010, focus on students' learning behaviors and provide focus to students and faculty.
- **The inclusion of integrative learning, currently demonstrated by the two comprehensive outcomes—ethical reasoning and global awareness--** This integrative approach builds on substantial educational research and aligns with approaches emphasized by the AAC&U, the Provost's Ad Hoc Core Curriculum Steering Committee in 2005, and UCCLE members since 2010. Integration supports students' personal connections across disciplines and long-term student learning.
- **Flexible and varied paths to meet students' needs--** Given the breadth and variety of students and curricular paths at the university, Virginia Tech needs a structure that supports a range of options. This need was formally identified by the Provost's Ad Hoc Core Curriculum Steering Committee in 2005 and has been a consistent theme in all subsequent UCCLE discussions and documents.
- **Design for a dynamic and responsive program that improves with implementation and evaluation--** In light of current best practices in higher education, our ongoing dialogue with the Office of Assessment and Evaluation has led to a plan that actively supports effective assessment and continuous improvement. As a leading-edge research institution, we must continually leverage new research on teaching and learning to provide a meaningful, credible general education experience for our students.

The following information provides additional details regarding the Pathways Plan development, including a timeline, responses to specific concerns raised by faculty, and attachments related to participation in the development of the plan.

## **Involvement of University Stakeholders Across Time, Disciplines, and Governance**

In developing a dynamic program, input from university stakeholders has been crucial. Following our representative system of governance has also been necessary in order to create viable change in general education. The Pathways Plan is the result of years of development and faculty discussion.

The Pathways Plan itself includes a brief summary of the initiative's history, beginning as early as 2002. For the past ten years, students, faculty, and administrators have consistently highlighted the need for the revision of General Education, as recorded in the following University initiatives and reports:

- The Provost's Ad Hoc Steering Committee Report: *Integrating Virginia Tech's General Education into the Undergraduate Curriculum*, 2005
- UCCLE's Surveys of Students and Faculty; Recommendations, 2010
- Report of the Undergraduate Strategic Plan Task Force (Goals 30-34).
- Integrated General Education (IGE) Proposal, 2013
- Pathways Plan, 2015

During these ten years, to ensure broad input from interested stakeholders, faculty members across campus have been invited to participate in numerous ways. Engaged faculty, students, and administrators responded with their thoughtful considerations and significant expenditures of their time.

### **Committees and Teams Engaged in Pathways – 2014-2015**

- **UCCLE** includes representatives from all colleges with undergraduate students and representatives from Faculty Senate, the Office of Assessment, University Libraries, Student Affairs, Undergraduate Academic Affairs, and the Student Government Association. (Please see Appendix A.) These representatives work actively with their constituent groups to share plans and solicit input. Working on this initiative for many years, the committee has surveyed faculty and students, conducted open meetings, and developed a proposal to the Office of the Provost in 2010. Since then, the members of UCCLE have studied the issues and developed a plan with the characteristics that would yield a responsive, rich, and flexible program. *UCCLE approved the Pathways Plan with a vote of 17 in favor, 1 nay.*
- **Curricular Planning Teams** met to develop learning outcomes and learning indicators, starting in fall 2013 and continuing through spring 2014. Members were selected based on teaching excellence and contributions to general education. Their names and departments are listed in the Pathways Plan and also in Appendix C. *The teams included 50 members from 32 different departments.*
- **Minor Teams** began forming across a series of meetings to share interests in developing thematic programming, an idea first formally called for by the Provost's Ad Hoc Committee in 2005, reiterated by students in the 2010 surveys, and noted in UCCLE's recommendations in 2010. *Involvement has included 62 faculty from all colleges with undergraduates, who represent 32 different departments.*
- Jill Sible met with faculty across disciplines, including departmental faculty, college faculty, and curriculum committees. (Please see Appendix B.) She logged more than 127

meetings to discuss check sheets, in-majors classes that might meet general education learning outcomes, and departmental concerns. The participants in these meetings provided critical feedback that was shared iteratively with UCCLE and helped shape the specifics of the Pathways Plan.

- **CUSP** includes representatives from all colleges, including deans or their representatives. *CUSP approved the Pathways Plan: 20 in favor, 3 nays, 2 abstentions.*

### **Meetings and Presentations Involving the University Community in Consideration of General Education**

University-wide meetings and presentations have been held since 2005 to engage the university community in conversation and to broaden our understanding of the possibilities for general education. Guest speakers have presented on campus to provide a national perspective on general education. These meetings have been open to campus stakeholders. Events include the following:

- 2004 -- University-wide Mini-Retreat to Review, Refine and Revitalize the Core Curriculum – attended by **88** faculty and administrators from across campus. As a result, pilots were created for the 21<sup>st</sup> Century Integrative Studies Program
- 2005, April -- Integrative Studies Mini-Retreat– Participants discussed the recommendations of the Provost’s Ad Hoc Steering Committee Report: *Integrating Virginia Tech’s General Education into the Undergraduate Curriculum*. The primary academic recommendation: “Modify the General Education Program to encourage greater integration and synthesis among educational experiences; specifically, we recommend changing the name of the Core, and developing three options for its implementation: 1) Traditional course option; 2) Student-defined experience; and 3) Thematic sequence of courses.” The mini-retreat was attended by **86** faculty and administrators from across campus.
- 2010, February --AAC&U Symposium by AAC&U’s Susan Albertine, Senior Director of LEAP States initiative: “Trends in General Education for the 21st Century” – attended by **45** members of the campus community. Part II of the Symposium, Re-Visioning General Education at Virginia Tech for the 21st Century, April 9, involved **29** participants.
- 2010 -- Student and faculty surveys – Perceptions of General Education – Results reported to VT faculty via CIDER (CEUT) and presented at AAC&U Conference, Chicago
- 2011, February – “Connecting Gen Ed, Liberal Learning, and the Major” – presented by Paul L. Gaston, former Provost, Kent State University, co-author of AAC&U’s *Practical Approaches to General Education and Liberal Learning*. Open to the campus community, **38** faculty and administrators attended.
- 2012, February – Workshop on General Education -- Participants included **56** members of the university community, involving faculty from every college offering undergraduate courses.
- 2013, April – Proposal for Integrative General Education shared with VT faculty. Extensive responses from faculty across campus led to improved process for development of new Pathways plan.
- 2013, November – Consultations with Terrel Rhodes, Vice President, Office of Quality, Curriculum, and Assessment, AAC&U -- meetings with invited members of Curricular Planning Teams and UCCLE



- 2014, April -- Open House – Participants included **102** faculty and **51** students. Draft outcomes and indicators were shared with the university community. Feedback was collected and disseminated to Curricular Planning Teams.
- 2014, October -- “The Civic and Economic Case for General Education” with AAC&U’s Debra Humphreys – attended by **90** faculty and administrators from across campus

Additionally, a series of workshops has been conducted for faculty interested in Pathways Minors. During Fall 2014 and Spring 2015, **60** faculty members have participated in sessions that included information sessions, a curricular mapping workshop, IPUGE workshop, and minors-match-making workshop. Due to faculty demand, an additional Pathways minors-matchmaking workshop is scheduled for April for April 9, 2015.

Over the years, hundreds of students, faculty, staff and administrators have invested time and energy into conceiving and proposing an integrated plan for General Education that could be powerful, transformative and unique to the Virginia Tech student,

### **Responsiveness to Faculty Input**

The most recent iteration of Pathways reflects input from the sessions listed above; many of the concerns, questions, and recommended changes led to revisions of the Pathways Plan.

Many of the early changes were noted in the transmittal memo that accompanied the document when it was sent to CUSP in November 2014. Some of the changes made by November 2014 as a result of this feedback are listed below. The committee took the following actions:

- Changed from one learning outcome to two – social sciences and humanities
- Renamed outcomes to reduce confusion between science and social science
- Added information about assessment
- Reframed emphasis on pedagogy
- Specified that ANY course could be included general education, including foreign language, if it meets the guidelines
- Added information about rationale for change
- Defined “advanced/applied” courses
- Specified the number of indicators to be met by each outcome
- Included statement of breadth for Critique and Practice in Design and the Arts
- Added indication that labs may be required of some students in science courses
- Changed name of “comprehensive” outcomes to “integrative” in order to emphasize overall purpose of those outcomes
- Determined a phase-in period for identifying every course in general education as meeting indicators for Ethical Reasoning or Intercultural and Global Awareness
- Added statement to rationale for credit hours
- Listed overall goals for course proposals
- Clarified relationship of Office of General Education to UCCLE
- Adopted suggested changes in indicators in for several outcomes
- Moved requirement for English proficiency from one learning outcome to the section describing all learning outcomes

Further changes took place by the time the Pathways Plan worked its way through CUSP to UC, including a provision to use 15-day-review for consideration of the implementation plan and a clarification that the Pathways Plan would not take effect until an implementation plan is approved.

### **Issues Addressed in Response to Faculty Senate**

Along with feedback from many other groups, UCCLE and CUSP received feedback from Faculty Senate. In response to Faculty Senate documents received at three points in the process, language and details were changed or clarified. While UCCLE did not make every change requested, all comments were carefully considered in the context of the significant work that had already been done by so many stakeholders and the feedback provided by other constituencies, including colleges and student representatives. Below is a summary of UCCLE responses to comments about the curriculum from Faculty Senate; excerpts from the lists of Faculty Senate concerns are shown in *italics* with the UCCLE change or clarification following.

#### **Resolution of the Faculty Senate, September 16, 2014**

Note: This resolution was based on an outline of the Pathways Plan before the current document was completed. According to Faculty Senate minutes, “A motion to accept this as a resolution, with light editing by President Hausman, was seconded and passed by a vote of 41 in favor, 1 in opposition, and with 2 abstaining.” A total of 81 senators comprise Faculty Senate.

- *We are uncertain why the humanities and social sciences are lumped together in one category. The explanation that the project teams wanted to encourage interdisciplinarity is not sufficient.*

Originally envisioned as one learning outcome, humanities and social sciences were changed to separate learning outcomes.

- *The learning outcomes for several areas need to be rewritten to get rid of jargon, to identify clear and assessable outcomes, and to treat disciplines as actual areas of inquiry rather than as domains for reflection.*

The Curricular Planning Teams worked to refine the outcomes, starting with the language of the current CLE, and researched the outcomes used by AAC&U and other universities. During group sessions, the teams reviewed the outcomes for clarity of language, especially for student readers. Domain experts and assessment specialists checked for clarity. Student representatives to UCCLE helped to make the outcomes more student-friendly. Of course, in a dynamic general education program, the language of these outcomes will certainly evolve over time if there is evidence that the language is leading to misunderstanding or impairing evaluation of learning.

- *The problems that the proposed revision to the CLE is trying to fix have not been identified or described. As a result, it is difficult to understand why the existing curriculum is not adequate to accomplish general education goals nor why more modest changes to the existing curriculum are not in order.*

The section on the need for change was expanded in the Pathways document. The distribution model of the CLE is still in place and will comprise most of the curricular offerings. Reframing the goals as learning outcomes didn't change the basic content of the current "areas." All are represented in the Pathways Plan.

#### **Faculty Senate Resolution, October 28, 2014**

**Note:** According to Faculty Senate Minutes, 48 out of 81 senators were in attendance, and vote on the resolution is described as follows: “The resolution was completed by the end of the meeting, by which point a quorum had been lost, so voting on the resolution took place electronically, via the Scholar site. A total of 52 senators voted on the resolution. The resolution passed with 49 voting yes, 2 voting no, and 1 abstaining.”

- *The relationship between the traditional governance body overseeing general education (UCCLE) and the new office of general education is unclear.*

Language clarifying this relationship was added to the Pathways Plan. Responsibilities of the Office of General Education will be further detailed in the Implementation Plan. Nothing changes regarding current faculty governance via UCCLE, CUSP, and UC.

- *The plan for assessment of the curriculum is not spelled out and it should be.*

A page of information about assessment was added to the Pathways Plan. Course-embedded assessment will be the goal, so faculty members are not creating artificial assignments for assessment purposes only. Rather, they would be organic to the course. The resulting assessment data would be available not only to review the efficacy of general education but also for other reporting purposes that might be necessary for various departments, colleges and/or the university, hence reducing the burden on programs that have reporting obligations to accrediting bodies. Further details regarding assessment will be part of the implementation plan.

- *Expectations for learning a foreign language should be spelled out in requirements for general education, especially given the emphasis on global learning and experience at the institution.*

At this point, the foreign language requirements are not part of general education; they are graduation requirements. However, the Pathways Plan does include a provision that courses taught in a foreign language may meet a learning outcome and could be considered for general education. This is another change from the original draft.

- *How do the new LOs lead to better assessment and better learning?*

The new learning outcomes are related to observable student behaviors--the same as the learning objectives used in all course proposals. While the discussion of learning theory might be better undertaken by CIDER, involved faculty members have been studying the power of learning outcomes as the plan has evolved. With a program based on learning outcomes, faculty and students have evidence of learning. If that evidence indicates that learning could be improved in some way, faculty members have the opportunity to refine their courses to maximize the opportunities for learning. Does learning take place in the current CLE? Surely, but the curriculum doesn't lend itself to identifying where that's happening, what are the best practices, which students are getting the most impact, or

what models deserve more attention or investment.

Our current CLE has some goals that do not include observable behaviors and cannot be assessed in a meaningful way to reflect current research on learning. In the 1990s and early 2000s, the Core Curriculum was evaluated by a process that reflected assessment thinking at the time, but it did not yield data that provided direct evidence of student learning.

- *What are the contemporary pedagogies referred to but not identified in the document? Who gets to decide what “contemporary pedagogies” means?*

This language was changed in the current iteration of the Pathways Plan to indicate that Pathways would be “responsive to the research about student learning” (p. 5).

- *Claiming that a decision made 22 years ago that was never implemented is the basis for a current decision about the increase in hours is inadequate. . . Assurances that there will not be problems with increased credit hours are not assuring.*

The information about the initial plan to expand hours is provided to indicate that – even in 1992 – faculty who worked to enhance general education at Virginia Tech understood that a robust program would need significant hours. The Pathways Plan would enable departments to offer majors-only courses to meet the learning outcomes of general education. Hence, there would not be a significant burden for students to meet the increased hours or for the program to provide them. All checksheets were reviewed to ensure a full understanding of how the proposed Pathways Plan would impact each degree program. Checksheets and concerns about credit hours were discussed in the numerous meetings held with individuals, departments, and colleges.

#### **Faculty Senate Statement on the Revision of General Education at Virginia Tech Passed by vote of the Faculty Senate, 1.20.2015**

**Note:** This statement, not resolution, was forward from Faculty Senate to University Council. According to Faculty Senate minutes, “Quorum was not met, with only 39 faculty senators in attendance.” A total of 81 senators comprise Faculty Senate. No actual vote on this statement is reflected in the minutes.

*The Faculty Senate recognizes and applauds the following important and well-conceived elements of the proposed Pathways curriculum, which are new elements not currently included in the existing Curriculum for Liberal Education (CLE):*

- *The creation of Pathways minors for those students who seek more integrated coursework to fulfill general education requirements;*
- *The opportunity to devise truly alternative Pathways curricula for exceptionally motivated students and faculty;*
- *The addition of computational and design thinking to the general education curriculum;*
- *The recognition that education in ethics is a necessary element of general education;*
- *The focus on active learning pedagogies and the need for varied pedagogical approaches to general education that nevertheless focus on engaging students in the learning process;*
- *The inclusion of assessable outcomes for all areas of the general education curriculum so*

- that the university and outside accrediting agencies will be able to determine if the curriculum is indeed meeting its stated goals for general education; and*
- *The recognition that a traditional distribution model is necessary to allow transfer students (especially from Virginia’s community colleges) and high school students with AP and IB credits to graduate from Virginia Tech in a timely manner.*
  - *The need for assessment appears to have driven the kind of descriptive language used in the Pathways proposal, in ways detrimental to its stated goal for “a more robust and meaningful general education” for students. The need to include measurable learning outcomes in the discussion of the goals for each area of the proposed Pathways curriculum means that there are a small number of specific learning indicators that can be identified. As a result, the overall description of the Pathways curriculum is far less intellectually robust, complex, and stimulating than the existing aspirational goals of the CLE. The Faculty Senate finds the difference in the language of the existing CLE curriculum guides and the proposed Pathways curriculum to be troublesome, and would find it a problem if the stripped down language of the learning outcomes and indicators, as written, were to become the public face of Virginia Tech’s general education curriculum. The Faculty Senate recommends that the UCCLE and/or CUSP explore ways to develop descriptive language for the new curriculum that is as robust, complex, and intellectually exciting as the existing language of the CLE. The limited number of assessable learning outcomes and indicators can then be abstracted from these broader descriptions, which will also serve to guide faculty in developing and revising courses. The aspirational goals and descriptions of the learning domains of the existing CLE are written in language that demonstrates a passion for knowledge and learning; the Faculty Senate believes that the new Pathways curriculum should likewise include language that conveys the faculty’s enthusiasm for the content of the curriculum.*

While the current CLE may “intellectually robust, complex, and stimulating,” we have no evidence of that without assessment. If some of the language of the current CLE is aspirational and would be useful to a group of readers—students, faculty, advisors, parents—perhaps a Faculty Senate group could incorporate that language in a white paper about the “passion for knowledge and learning.” Such a document could be posted on the Pathways site and shared with intended audiences.

- *The relation of the Core Learning Outcomes to the Integrative Learning Outcomes in the proposed Pathways curriculum is unclear. The proposal states that “every Pathways course will address at least one of the Integrative Outcomes” (Revision General Education VT 11/17/2014, p. 10). Such a requirement demands significant revision of almost every course in the existing curriculum, because it means that each course must meet either the ethics or intercultural and global awareness learning indicators in addition to the learning indicators in its own area. The Faculty Senate is not certain that this is the best way to accomplish learning goals in these two content areas, especially since the requirement will be waived for transfer students who transfer in credits on the distribution model (Revision General Education VT 11/17/2014, p. 12). In addition, the document states that “clearly, competence in ethical reasoning [or intercultural and global awareness] can’t be achieved in just one course” (Revision General Education VT 11/17/2014, p. 12), a rationale that seems to be meant to justify the distribution of these outcomes across the curriculum as a whole. However, it is not clear to the Faculty Senate that a basic foundational course in these areas is not necessary as an element of general education, to be augmented by integration of these topics in students’ subsequent coursework in general education or their majors. In any event, it is clear to the Faculty Senate that more work needs to be done to clarify the value and*

*place of ethical reasoning and intercultural and global awareness in the Pathways curriculum, as it is not confident that the existing structure is adequate to the demands of these learning outcomes.*

Integrated outcomes: These two outcomes reflect the emphasis on integration that has been a theme of discussions at Virginia Tech since 2004. Clearly, the importance of integration has been central to the planning all along because of the impact on student learning. Moreover, ethical reasoning and intercultural and global awareness are competencies that align with Virginia Tech's identity and the competencies employers seek in a skilled workforce. The integrated outcomes allow students to understand knowledge in context.

Course revision to meet integrated outcomes: While the implementation plans are not available, there has been no discussion or expectation among UCCLE members about "significant revision" or "significant burden" involved with incorporating the integrated outcomes. Revision of our general education will undoubtedly require some effort on the part of all involved. CIDER, TLOS, the Graduate School, and the Office of General Education are committed to supporting faculty and graduate students in course revision where it is necessary. Many courses across the curriculum already address issues related to the ethics and intercultural learning.

Foundational course: When Virginia Tech moved changed the name of general education from "core curriculum," it was with the understanding that a large research institution doesn't have a core. The breadth of university studies demands flexibility and variety of offerings to meet the needs of students who come from different educational experiences and who explore different paths at Virginia Tech. Certainly stand-alone courses related to these two outcomes—courses that explore these concepts in greater depth--should be available for students who want to take them or majors who want to require them.

Transfer students: Because of our agreements with the State Council of Higher Education, students who transfer to Virginia Tech having earned an associate's degree at an approved community college have generally met the requirements of general education at Virginia Tech. While not currently part of the Pathways Plan, general education could include a requirement that students document their path toward meeting the integrated outcomes--whether in courses at the community college, courses in the major at VT, or in additional course work in general education. Such an action might bear further consideration if articulation agreements would permit such a change.

- *It is the view of the Faculty Senate that domain experts, selected at the department level, should be asked to participate in the refinement and revision of the existing proposal, whose overall scheme is largely acceptable. For example, ethics experts from across the university should be consulted concerning how to integrate ethics into undergraduate education. In another example, social scientists should develop both the broad aspirational goals of the social science area and be consulted on its specific learning indicators. The learning indicators and outcomes should be scrutinized to ensure that they are in sync and that both are related to broader descriptions of the learning domains and the significance and purpose of knowledge across the curriculum. In all areas, language in the existing CLE curriculum guide should be consulted to determine if it is still relevant to the Pathways curriculum and its objectives and, if so, incorporated.*

Domain experts have been involved at every step in the process (as noted in Appendix C). The Curricular Planning Teams reviewed the language of the CLE as a starting point in their discussions.

- *For such a significant revision of general education to be successful, the faculty as a whole must feel engaged in the process and confident that the proposed curriculum will be an improvement on the existing model.*

Faculty members have had many opportunities to be involved—either as participants at the various events or as representatives to college and university committees. The work of these people has been immeasurable and greatly appreciated. In the end, the Pathways Plan is the result of a service-oriented faculty, students, and administrators who are interested in meeting student needs through a vibrant, credible, and integrated general education program.

## Appendix A. UCCLE Membership 2010-2015

In 2010, UCCLE presented recommendation to the Office of the Provost, endorsing the need for a revision of general education that would include curricular and infrastructure enhancements. The members listed below (2010-2015) have worked to support those recommendations in the development of the Pathways Plan, specifically endorsing an integrated curriculum, the incorporation of learning outcomes and assessment plans, and programming to support faculty innovation and student flexibility.

<b>UCCLE Member</b>	<b>Department</b>	<b>Representing</b>
<b>2014-15</b>		
Marlene Preston, Chair	Communication	Provost
Sheila Carter-Tod	English	Provost
Richard Ferraro	Asst. Vice President for Student Affairs	Student Affairs
Kylie Gilbert	Accounting & Information Systems	SGA
Aarnes Gudmestad	Foreign Languages and Literatures	CLAHS
Art Keown	Business	COB
Ann -Marie Knoblauch	Art	CAUS
Kate McConnell/Steve Culver	Asst. Director, Assessment & Evaluation	Assessment
Carolyn Meier	Library, Learning Services	University Libraries
Bob Oliver	Geography	CNRE
Don Orth	Fish and Wildlife Conservation	Faculty Senate
Marie Parette	Engineering Education	COE
Stephen Hensell (Fall 2014)	Political Science	SGA
Michel Pleimling	Physics	COS
Renee Selberg-Eaton	HNFE	CALS
Jill Sible	Asst. Provost, Undergraduate Education	Provost
Kimberly Smith	Director, University Academic Advising Ctr	Invited guest
Rob Stephens	Assoc. Dean, Undergrad Affairs, CLAHS	CUSP
Dan Thorp	History	Faculty Senate
<b>2013-14</b>		
Marlene Preston, Chair	Communication	Provost
Blake Barnhill	Finance	SGA
Sheila Carter-Tod	English	Provost
Jay Crone	Music	CLAHS
Richard Ferraro	Asst. Vice President for Student Affairs	Student Affairs
Art Keown	Business	COB
Ann -Marie Knoblauch	Art	CAUS
Kate McConnell/Ray Van Dyke	Asst. Director, Assessment & Evaluation	Assessment
Carolyn Meier	Library, Learning Services	University Libraries
Bob Oliver	Geography	CNRE
Don Orth	Fish and Wildlife Conservation	Faculty Senate
Marie Parette	Engineering Education	COE
Michel Pleimling	Physics	COS
Renee Selberg-Eaton	HNFE	CALS
Jill Sible	Asst. Provost, Undergraduate Education	Provost
Deborah Smith	Math	Faculty Senate
Daniel Strock	HNFE	SGA
Dan Thorp	History	Faculty Senate
<b>2012-13</b>		
Kurt Hoffman, Chair	Psychology	COS



Althea Aschmann	Library	Faculty Senate
Sheila Carter-Tod	English	Provost
Klaus Elgert	Biological Sciences	COS
Richard Ferraro	Asst. Vice President for Student Affairs	Student Affairs
Bronwyn Foley	HNFE	SGA
Virginia Fowler	English	CUSP
Paul Heilker	English	CLAHS
Sam Hicks	Business	COB
Ann -Marie Knoblauch	Art	CAUS
Christine McCoy	Economics	SGA
Kate McConnell/Ray Van Dyke	Asst. Director, Assessment & Evaluation	Assessment
Carolyn Meier	Research & Instructional Services	University Libraries
Bob Oliver	Geography	CNRE
Marie Parette	Engineering Education	COE
Marlene Preston	Communication	Provost
Renee Selberg-Eaton	HNFE	CALS
Deborah Smith	Math	Faculty Senate
Dan Thorp	History	Provost
<b>2011-12</b>		
Scott Renneker, Chair	Natural Resources and Environment	CNRE
Sheila Carter-Tod	English	Provost
Richard Ferraro	Asst. Vice President for Student Affairs	Student Affairs
Virginia Fowler	English	CUSP
Paul Heilker	English	CLAHS
Sam Hicks	Business	COB
Kurt Hoffman	Psychology	COS
Ann -Marie Knoblauch	Art	CAUS
Kate McConnell/Ray Van Dyke	Asst. Director, Assessment & Evaluation	Assessment
Alan McDaniel	Agriculture	CALS
Lisa McNair	Engineering	COE
Carolyn Meier	Research & Instructional Services	University Libraries
Marlene Preston	Communication	Provost
Angelica Smith	Communication	SGA
Dan Thorp	History	Provost
Cindy Wood	Animal and Poultry Science	Faculty Senate
Ryan Waddell	Political Science	SGA
<b>2010-11</b>		
Sheila Carter-Tod, Chair	English	Provost
Brandon Carroll	Agriculture and Applied Economics	SGA
Elizabeth Fine	Humanities	CLAHS
Kurt Hoffman	Psychology	COS
Ally Hammond	English	SGA
Rachel Holloway	Assoc. Dean, Undergrad Affairs - CLAHS	CUSP
Kate McConnell/Ray Van Dyke	Asst. Director, Assessment & Evaluation	Assessment
Alan McDaniel	Agriculture	CALS
Lisa McNair	Engineering	COE
Carolyn Meier	Research & Instructional Services	University Libraries
Marlene Preston	Communication	Provost
Donna Cassell Ratcliffe	Director of Career Services	Student Affairs
Scott Renneker	Natural Resources and Environment	CNR
Meir Schneider	Business	COB
Joao Setubal	Bioinformatics	Faculty Senate

Dan Thorp	History	Provost
Yonsenia White	Architecture	CAUS
Cindy Wood	Animal and Poultry Science	Faculty Senate
<b>2009-10</b>		
Marlene Preston, Chair	Communication	Provost
Sheila Carter-Tod	English	Provost
Jim Collier	English	Faculty Senate
Elizabeth Fine	Humanities	CLAHS
Bo Hart	Communication	SGA
Kurt Hoffman	Psychology	COS
Shane McCartey	Marketing	SGA
Alan McDaniel	Agriculture	CALS
Lisa McNair	Engineering	COE
Carolyn Meier	Research & Instructional Services	University Libraries
Donna Cassell Ratcliffe	Director of Career Services	Student Affairs
Joe Scarpaci	Geography	CONR
Joe Sirgy	Marketing	COB
Cindy Wood	Animal and Poultry Science	Faculty Senate, CUSP

## Appendix B. Discussions with Faculty Across Campus

Along with the members of the Curricular Planning Teams (listed in the Pathways Plan), Jill Sible met with faculty and administrators across campus to discuss concerns, review checksheets, and share ideas. These discussions led to greater understanding and improvement of the plan.

### Deans/Assoc. Deans/Executive Committees

- CALS (X2)
- CAUS (X2)
- CLAHS (X3)
- CNRE (X3)
- COE (X4)
- COS (X4)
- Graduate School
- PCOB (X2)
- University Libraries

### Departments/Department Heads

- Apparel, Housing & Resource Management
- Dairy Science
- Engineering Education
- English (X2)
- Foreign Languages and Literatures
- Geosciences
- Human Development
- Philosophy
- School of Performing Arts (X2)
- Sociology

### Curriculum Committees/Reps

- Aerospace and Ocean Engineering
- Agricultural and Applied Economics
- Animal and Poultry Science
- Biochemistry
- Biological Systems Engineering
- CALS
- CAUS
- Civil and Environmental Engineering
- CNRE
- COE
- Computer and Electrical Engineering
- Computer Science
- COS
- Crop Soil and Environmental Science
- Engineering Science and Mechanics
- Food Science and Technology
- Horticulture (X2)
- Human Nutrition, Food and Exercise
- Industrial Systems Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Mining and Minerals Engineering
- PCOB
- Water degree

### Other University Units

- Academic Council
- Academic Roundtable
- Center for the Arts
- Center for Innovation and Entrepreneurship
- CIDER
- Communicators (X2)
- Department Heads Executive Council
- Diversity and Inclusion(X2)
- Faculty Senate or leadership (X3)
- Hispanic and Latino Caucus
- Libraries
- OIREC
- Office of Assessment and Evaluation
- TLOS (X3)
- SGA and other student groups (X4)
- University Communicators
- University Studies

**National/Local Organizations:** ABET (during site visit), AAC&U (4 external visitors; 1 gen ed conference), NuSpark

### Individual Faculty from

- Architecture and Design
- Biological Sciences (X2)
- Computer Science
- Crop Soil and Environmental Sciences
- Education
- Engineering Education (X2)
- English (X2)
- Finance
- Foreign Languages and Literatures (X2)
- Geography
- Geosciences
- Industrial Design

- Management (X2)
- Music (X2)
- Libraries (X2)
- Philosophy (X2)
- Physics
- Religion and Culture (X5)
- School of Visual Arts (X4)

- Science and Technology Studies (X2)
- Science, Engineering and Law
- Sociology
- Statistics (X2)
- Student Affairs
- University Honors

### Pathways workshop Series

Mike Ellerbrock	Ag Econ	CALS
Curt Friedel	Ag leadership	CALS
Cindy Wood	APS	CALS
Nada Tamin	APS	CALS
Stephen Hiner	Entomology	CALS
Joe Eifert	FST	CALS
Susan Clark	Horticulture	CALS
Pete Ziegler		CALS/ CNRE
Susan Day	FREC/Hort	CNRE
Kevin Concannon	Art History	CAUS
Ann Marie Knoblauch	Art History	CAUS
Irene Leech	AHRM	CLAHS
Julia Beamish	AHRM	CLAHS
Nancy Metz	English	CLAHS
Sean Conaway	English	CLAHS
Ginny Fowler	English	CLAHS
Mary Denson Moore	English	CLAHS
Tony colaianne	English	CLAHS
Joe Scallorns	English	CLAHS
Leslie Nielan	English	CLAHS
Joe Eska	English	CLAHS
Gyorgyi Voros	English	CLAHS
Annie Hesp	FLL	CLAHS
Zac Zimmer	FLL	CLAHS
Melissa Coburn	FLL	CLAHS
Elizabeth Austin	FLL	CLAHS
Mark Barrow	History	CLAHS
Barbara Reeves	History	CLAHS
Trudy Harrington	History	CLAHS
Mark Barrow	History	CLAHS
	Human	
Anisa Zvonkovic	Development	CLAHS
Tracy Cowden	Music	CLAHS
Patty Raun	Performing Arts	CLAHS
Ben Jantzen	Philosophy	CLAHS

Michael Moehler	Philosophy	CLAHS
James Klagge	Philosophy	CLAHS
Kelly Trogon	Philosophy	CLAHS
Anita Puckett	Religion and Culture	CLAHS
Emily Satterwhite	Religion and Culture	CLAHS
Aaron Ansell	Culture	CLAHS
Ryan Rideau	Sociology	CLAHS
Dan Breslau	STS	CLAHS
Evan Brooks	FREC	CNRE
Randy Wynne	FREC	CNRE
Val Thomas	FREC	CNRE
Bill Carstensen	Geography	CNRE
Tim Baird	Geography	CNRE
Bob Oliver	Geography	CNRE
Dennis Kafura	Computer Science	COE
Scott Walker	Engineering Ed	COE
Jill Sible	Biological Sciences	COS
Rich Walker	Biological Sciences	COS
John Chermak	Geosciences	COS
Nancy Ross	Geosciences	COS
Leo Piilonen	Physics	COS
Kim Danilosky	Psychology/Mar keting	COS/PC OB
Rick Parsons	HTM	PCOB
Kim Carlson	Marketing	PCOB
Keri Swaby	UG research	Provost
Cassandra Hockman	Fralin	
Anita Walz	Libraries	
Cary Costello	Registrar	

### Appendix C: Recent Contributors to the Pathways Plan

As the Pathways Plan began to take shape, many faculty were responsible for the concepts and language that emerged in the January 2015 version of the plan. They were members of various groups, including Curriculum Planning Teams, Pathways Scholars, and UCCLE; many teach in the current CLE. To highlight the qualifications of these involved faculty as domain and pedagogy experts, their positions, departments, and university-level teaching awards are listed below.

<b>Name</b>	<b>Position</b>	<b>Administrative Titles</b>	<b>Department</b>	<b>Teaching Honorifics</b>
Kathryn Albright	Professor		School of Architecture & Design	
Mark Barrow	Professor	Department Chair	History	ATE, Alumni Award
Liesl Baum	Research Assistant Professor		Institute for Creativity, Arts & Technology	
Stephen Biscotte	AP Faculty	Coordinator, Office of Gen. Education		
Sheila Carter-Tod	Associate Professor	Director of Composition	English	
John Chermak	Assc. Prof. of Practice		Geosciences	Pathways Scholar
Kevin Concannon	Professor	Director, SOVA	Art History	
Steven Culver	AP Faculty	Assistant Provost for Assessment & Evaluation	Assessment & Evaluation	
Peter Doolittle	Professor	Executive Director, CIDER; Asst. Provost, Teaching & Learning	Learning Sciences	Alumni Award
Ed Dorsa	Associate Professor	Program Chair	Industrial Design	XCaliber Award
Jeannine Eddleton	Advanced Instructor		Chemistry	ATE, Wine Award
Mike Ellerbrock	Professor		Agricultural & Applied Economics	ATE, Wine Award, Sporn Award
Tom Ewing	Professor	Associate Dean	History	
Richard Ferraro	AP Faculty	Assistant Vice President, Student Affairs	Student Affairs	
Shelli Fowler	Associate Professor	Senior Director TLOS	English	Diggs Teaching Scholar
Matthew Gabriele	Associate Professor		Religion & Culture	
Aarnes Gudmestad	Associate Professor		Foreign Languages & Literatures	
Kurt Hoffman	Senior Instructor	Director, Undergrad. Studies	Psychology	ATE, Alumni Award
Kwame Harrison	Associate Professor		Sociology	Diggs Teaching Scholar
Peter Haskell	Professor	Department Head	Mathematics	
Willie Jester	Instructor		Marketing	

Greg Justice	Associate Professor		Theater & Cinema	ATE, Alumni Award, Diggs Teaching Scholar
Dennis Kafura	Professor		Computer Science	Pathways Scholar
Sarah Karpanty	Associate Professor	Assistant Department Head	Fish& Wildlife Conservation	4VA grantee
Art Keown	Professor	Department Head	Finance	ATE, Alumni Award, Wine Award
Ben Knapp	Professor	Director, Creativity, Arts, & Technology	Computer Science	
Ann-Marie Knoblauch	Associate Professor	Assistant Director, SOVA; Director, Art History	Art History	
Barbara Leshyn	Advanced Instructor		Horticulture	
Jack Lesko	Professor	Associate Dean	Engineering Science & Mechanics	
Eric Lyon	Assistant Professor		Music	4VA grantee
Tom Martin	Professor		Electrical & Computer Engineering	Diggs Teaching Scholar, XCaliber Award
Kathryne McConnell	AP Faculty	Director of Assessment	Provost Office	
Carolyn Meier	Instruction Librarian		Libraries	
Vickie Mouras	Asst. Prof. of Practice		Civil & Environmental Engineering	
Brian Murphy	Professor		Fish& Wildlife Conservation	Diggs Teaching Scholar, CIDER Scholar
Robert Oliver	Assistant Professor		Geography	
Donald Orth	Professor		Fish& Wildlife Conservation	ATE, Wine Award, Diggs Teaching Scholar
Marie Parette	Associate Professor		Engineering Education	
Lydia Patton	Associate Professor		Philosophy	
Michel Pleimling	Professor	Program Leader, Integrated Science Curriculum	Physics	
Nicholas Polys	Affiliate Prof., Computer Science	Director Visual Computing	Advanced Research Computing	
Marlene Preston	Associate Professor	Asst. Dept. Head	Communication	ATE, Alumni Award, XCaliber
Patty Raun	Professor	Director, School of Performing Arts	Theater & Cinema	
Jane Roberston	Asst. Prof. of Practice		Statistics	
Alma Robinson	Instructor		Physics	
Barbara Ryder	Professor	Department Head	Computer Science	
David Schmale	Associate Professor		Plant Pathology, Phys. & Weed Science	ATE, Sporn Award
Renee Selberg-Eaton	Instructor	Undergraduate Program Director	Human Nutrition, Foods & Exercise	

Jill Sible	Professor	Assistant Provost for Undergraduate Education	Biological Sciences	Diggs Teaching Scholar, ATE, Alumni Award. National Academies Education Fellow & Mentor
John Simonetti	Professor	Associate Chair	Physics	
Kimberly Smith	Assistant Professor	Director	Univ. Academic Advising	
Robert Stephens	Associate Professor	Associate Dean	History	
Greg Tew	Associate Professor		School of Architecture & Design	ATE, Sporn Award
Daniel Thorp	Associate Professor	Past Director of the Office of CLE	History	ATE, Wine Award
Matthew Vollmer	Assistant Professor		English	ATE, Sporn Award
Richard Walker	Associate Professor	Associate Department Head	Biological Sciences	ATE, Alumni Award, National Academies Education Fellow
Quinn Warnick	Assistant Professor		English	
Alan Weinstein	Associate Professor		Music	ATE, Alumni Award Pathways Scholar
Anisa Zvonkovic	Professor	Department Head	Human Development	