

**Pathways to General Education  
2018-2019 Assessment Data Summary**

Virginia Tech adopted the Pathways to General Education curriculum in Spring 2015 with an implementation date of Fall 2018. During the Fall 2018 and Spring 2019 semesters, Virginia Tech offered 313 approved Pathways courses with a total of 2,227 sections that addressed one or more of the first six Core Concepts<sup>1</sup> as well as one or more of the Integrative Concepts.<sup>2</sup>

**Table 1**

*Percentage and Number of Offered Courses and Sections Addressing Core and Integrative Concepts*

	DISC	CTH	RSS	RNS	QCT	CPDA	ER	IGA
Courses* (n=313)	11% (35)	35% (111)	30% (94)	14% (44)	12% (38)	12% (38)	36% (113)	66% (207)
Sections (n=2,227)	24% (536)	15% (331)	14% (305)	28% (613)	15% (325)	12% (273)	31% (683)	70% (1,558)

\* Some Pathways courses address more than one Core Concept and/or Integrative Concept.

Instructors from these sections were asked to submit assessment data to the Institutional Effectiveness unit in the Office of Analytics and Institutional Effectiveness. Overall, Pathways assessment data were submitted for 241 courses (77%) and 1,510 sections (68%). The number and percentage of sections submitting data increased from the Fall 2018 semester to the Spring 2019 semester.

**Table 2**

*Percentage/Number of Sections Offered, Data Received and Included in the Analyses, and Student Enrollment*

	Fall 2018	Spring 2019	Overall
Pathways Sections Offered	1,130	1,097	2,227
Pathways Sections Reporting Data	61% (692)	75% (818)	68% (1,510)
Pathways Sections Included in Analyses	59% (664)	72% (789)	65% (1,453)
Enrollment in Pathways Sections Offered*	55,028	50,566	105,594
Enrollment in Sections Included in Analyses*	62% (33,864)	68% (34,322)	65% (68,186)

\* Values include students who may be enrolled and/or assessed in multiple Pathways courses.

<sup>1</sup> Data for the seventh Core Concept, Critical Analysis of Identity and Equity in the United States (CAIEUS), are not included in the 2018-2019 summary report since CAIEUS was approved a year later than the six other Core Concepts/ Integrative Concepts. The Core Concepts included in this report are Discourse (DISC); Critical Thinking in the Humanities (CTH); Reasoning in the Social Sciences (RSS); Reasoning in the Natural Sciences (RNS); Quantitative and Computational Thinking (QCT); and Critique and Practice in Design and the Arts (CPDA).

<sup>2</sup> The two Integrative Concepts are Ethical Reasoning (ER) and Intercultural and Global Awareness (IGA).

**Table 3**

*Percentage and Number of Pathways Sections Submitting Data for at Least One SLO by Concept and Semester*

	Fall 2018		Spring 2019		Overall	
	Sections Offered	Sections Submitting Data*	Sections Offered	Sections Submitting Data	Sections Offered	Sections Submitting Data
DISC	281	25% (69)	255	84% (213)	536	53% (282)
CTH	168	46% (78)	163	48% (79)	331	47% (157)
RSS	149	54% (80)	156	47% (74)	305	50% (154)
RNS	300	96% (287)	313	89% (279)	613	92% (566)
QCT	160	81% (130)	165	85% (141)	325	83% (271)
CPDA	142	53% (75)	131	54% (71)	273	53% (146)
ER	343	55% (190)	340	63% (215)	683	59% (405)
IGA	797	56% (447)	761	70% (532)	1,558	63% (979)

\* Some Pathways sections submitted data for multiple Core Concepts and Integrative Concepts.

Of the data received for the first six Core Concepts and the Integrative Concepts during the Fall 2018 and Spring 2019 semesters:

- 1,210 (80%) of the 1,510 sections submitted data for all required student learning outcomes (SLOs).
- 300 (20%) of the 1,510 sections were missing data for one or more required SLOs.

Pathways instructors provided data on how SLOs were measured in addition to student competency levels. Only data that met all of the following criteria were included in analyses.

- Instructors measured the same SLOs that were approved in the official Pathways course proposal.
- Instructors assessed individual student performance on each Pathways SLO independently from other Pathways SLOs addressed in the course.
- Instructors used all three rating categories (i.e., Below Competent, Competent, and Above Competent) when determining student competency on Pathways SLOs.
- The number of students reported by instructors as Below Competent, Competent, and Above Competent matched the total number of students assessed.

For sections reporting data for multiple SLOs, if data for one or more SLOs met the above criteria, but data for other SLOs did not, only data for those SLOs that met the criteria were included in analyses. These sections are labeled as “partially included.” Sections where none of the SLO data

met the above criteria were excluded from the analyses. Of the 1,510 sections that submitted data for the Fall 2018 and Spring 2019 semesters:

- 1,235 sections (82%) were fully included.
- 218 sections (14%) were partially included.
- 57 sections (4%) were excluded.

**Table 4**

*Percentage and Number of Pathways Sections Submitting Complete Data for Required SLOs and Sections Included (Fully and Partially) in Analyses*

	Sections Submitting Data	Sections Submitting Data for All Required SLOs	Sections Included (Fully and Partially) in Analyses
Discourse	282	275 (98%)	280 (99%)
Critical Thinking in the Humanities	157	134 (85%)	147 (94%)
Reasoning in the Social Sciences	154	136 (88%)	138 (90%)
Reasoning in the Natural Sciences	566	555 (98%)	556 (98%)
Quantitative and Computational Thinking	271	259 (96%)	247 (91%)
Critique and Practice in Design and the Arts	146	131 (90%)	142 (97%)
Ethical Reasoning	405	396 (98%)	361 (89%)
Intercultural and Global Awareness	979	898 (92%)	938 (96%)

Summary data related to student competency levels for each of the first six Core Concepts and the Integrative Concepts are provided in the following pages.

## Core Concept: Discourse

Discourse courses are approved as either Foundational or Advanced/Applied. 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. Students will demonstrate increasing proficiency over the years. All student learning outcomes will be met in all courses, but expectations for proficiency will be heightened for Advanced/Applied courses. There are five student learning outcomes (SLOs) associated with Discourse.<sup>1</sup>

**SLO 1:** Discover and comprehend information from a variety of written, oral, and visual sources.

**SLO 2:** Analyze and evaluate the content and intent of information from diverse sources.

**SLO 3:** Develop effective content that is appropriate to a specific context, audience, and/or purpose.

**SLO 4:** Exchange ideas effectively with an audience.

**SLO 5:** Assess the product/presentation, including feedback from readers or listeners.

During the Fall 2018 and Spring 2019 semesters, in the Core Concept of Discourse, Virginia Tech offered 35 Pathways courses with a total of 536 sections. All Discourse courses address all five SLOs.

Assessment data were received from 26 courses (74%) and 282 sections (53%). Of the data received:

- 275 sections (98%) submitted data for all required SLOs.
- 7 sections (2%) were missing data for one or more required SLOs.
- 261 sections (93%) were fully included; 19 sections (7%) were partially included; and 2 sections (<1%) were excluded.<sup>2</sup>

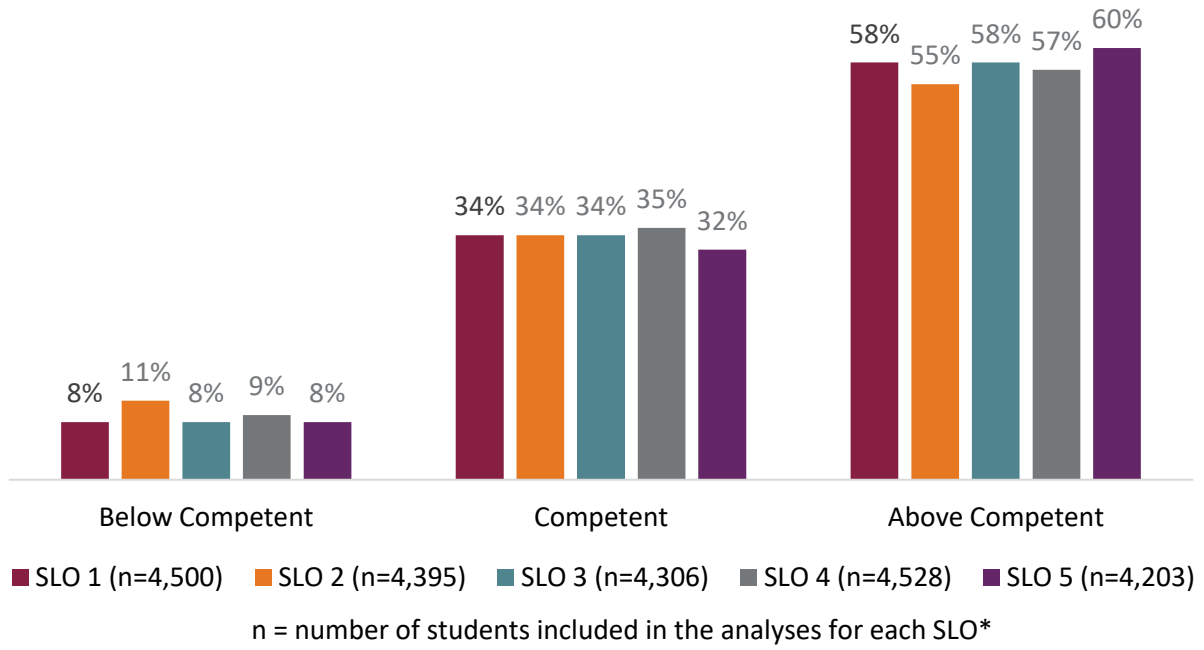
Overall, usable data were obtained from 280 (99%) of the 282 sections submitting data.

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<sup>1</sup> This description of Discourse is adapted from the Pathways Implementation Plan approved in 2017.

<sup>2</sup> Data were partially included or excluded due to one or more of the reasons provided on page 3.

### Discourse: Competency by SLO



\* Values include students who may have been assessed in multiple Pathways courses.

## Core Concept: Critical Thinking in the Humanities

Critical Thinking in the Humanities (CTH) involves 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 concept must meet a majority of the student learning outcomes (SLOs). This Core Concept includes four SLOs.<sup>1</sup>

**SLO 1:** Identify fundamental concepts of the humanities.

**SLO 2:** Analyze texts and other created artifacts using theories and methods of the humanities.

**SLO 3:** Interpret texts and other created artifacts within multiple historical, intellectual, and cultural contexts.

**SLO 4:** Synthesize multiple complex sources and create a coherent narrative or argument.

During the Fall 2018 and Spring 2019 semesters, in the Core Concept of CTH, Virginia Tech offered 111 Pathways courses with a total of 331 sections. The following table indicates the percentage and number of offered courses and sections addressing each individual SLO.

	SLO 1	SLO 2	SLO 3	SLO 4
Courses (n=111)	90% (100)	90% (100)	78% (87)	63% (70)
Sections (n=331)	95% (313)	94% (310)	63% (208)	68% (224)

Assessment data were received from 78 courses (70%) and 157 sections (47%). Of the data received:

- 134 sections (85%) submitted data for all required SLOs.
- 23 sections (15%) were missing data for one or more required SLOs.
- 130 sections (83%) were fully included; 17 sections (11%) were partially included; and 10 sections (6%) were excluded.<sup>2</sup>

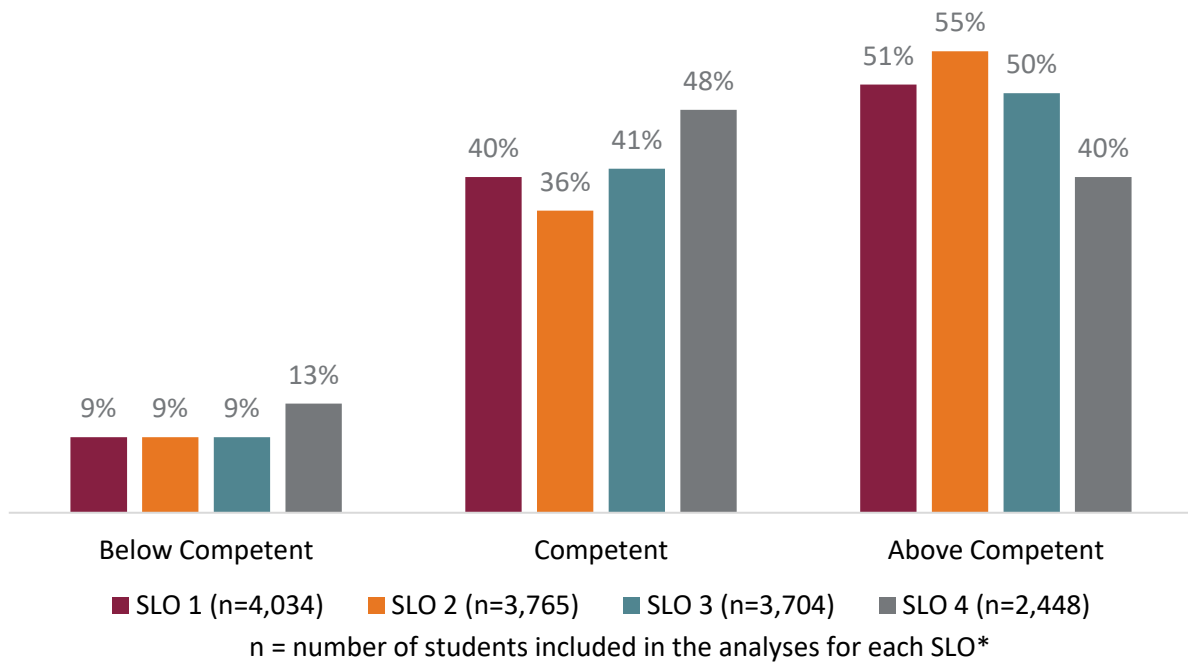
Overall, usable data were obtained from 147 (94%) of the 157 sections submitting data.

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<sup>1</sup> This description of CTH is adapted from the Pathways Implementation Plan approved in 2017.

<sup>2</sup> Data were partially included or excluded due to one or more of the reasons provided on page 3.

### Critical Thinking in the Humanities: Competency by SLO



\* Values include students who may have been assessed in multiple Pathways courses.

## Core Concept: Reasoning in the Social Sciences

Reasoning in the Social Sciences (RSS) requires 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 concept 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 concept must meet a majority of the student learning outcomes (SLOs). This Core Concept includes four SLOs.<sup>1</sup>

**SLO 1:** Identify fundamental concepts of the social sciences.

**SLO 2:** Analyze human behavior, social institutions, and/or patterns of culture using theories and methods of the social sciences.

**SLO 3:** Identify interconnections among and differences between social institutions, groups, and individuals.

**SLO 4:** Analyze the ways in which values and beliefs relate to human behavior and social relationships.

During the Fall 2018 and Spring 2019 semesters, in the Core Concept of RSS, Virginia Tech offered 94 Pathways courses with a total of 305 sections. The following table indicates the percentage and number of offered courses and sections addressing each individual SLO.

	SLO 1	SLO 2	SLO 3	SLO 4
Courses (n=94)	90% (85)	85% (80)	80% (75)	72% (68)
Sections (n=305)	90% (273)	89% (270)	80% (244)	61% (186)

Assessment data were received from 71 courses (76%) and 154 sections (50%). Of the data received:

- 136 sections (88%) submitted data for all required SLOs.
- 18 sections (12%) were missing data for one or more required SLOs.
- 124 sections (81%) were fully included; 14 sections (9%) were partially included; and 16 sections (10%) were excluded.<sup>2</sup>

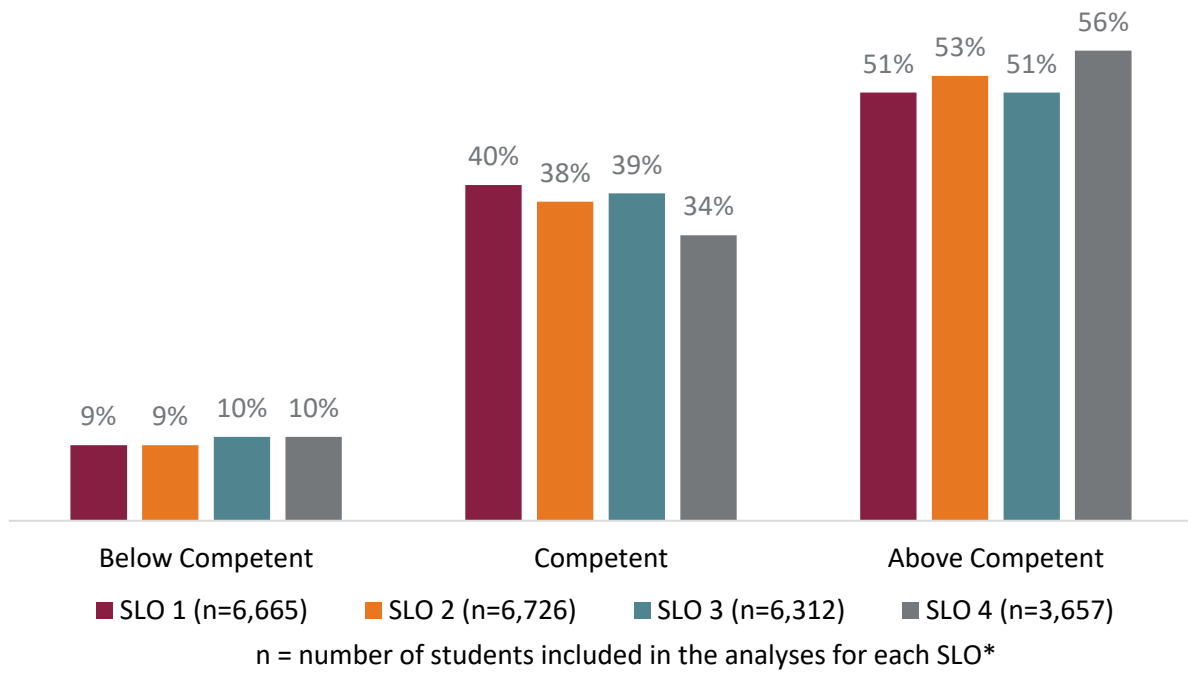
Overall, usable data were obtained from 138 (90%) of the 154 sections submitting data.

<sup>1</sup> This description of RSS is adapted from the Pathways Implementation Plan approved in 2017.

<sup>2</sup> Data were partially included or excluded due to one or more of the reasons provided on page 3.



### Reasoning in the Social Sciences: Competency by SLO



\* Values include students who may have been assessed in multiple Pathways courses.

## Core Concept: Reasoning in the Natural Sciences

Reasoning in the Natural Sciences (RNS) 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 concept must meet a majority of the student learning outcomes (SLOs). This Core Concept includes four SLOs.<sup>1</sup>

**SLO 1:** Explain the foundational knowledge of a particular scientific discipline.

**SLO 2:** Apply principles and techniques of scientific inquiry.

**SLO 3:** Evaluate the credibility and the use/misuse of scientific information.

**SLO 4:** Analyze the reciprocal impact of science and society.

During the Fall 2018 and Spring 2019 semesters, in the Core Concept of RNS, Virginia Tech offered 44 Pathways courses with a total of 613 sections. The following table indicates the percentage and number of offered courses and sections addressing each individual SLO.

	SLO 1	SLO 2	SLO 3	SLO 4
Courses ( <i>n</i> =44)	98% (43)	86% (38)	59% (26)	73% (32)
Sections ( <i>n</i> =613)	99.8% (612)	98% (603)	54% (332)	49% (302)

Assessment data were received from 37 courses (84%) and 566 sections (92%). Of the data received:

- 555 sections (98%) submitted data for all required SLOs.
- 11 sections (2%) were missing data for one or more required SLOs.
- 538 sections (95%) were fully included; 18 sections (3%) were partially included; and 10 sections (2%) were excluded.<sup>2</sup>

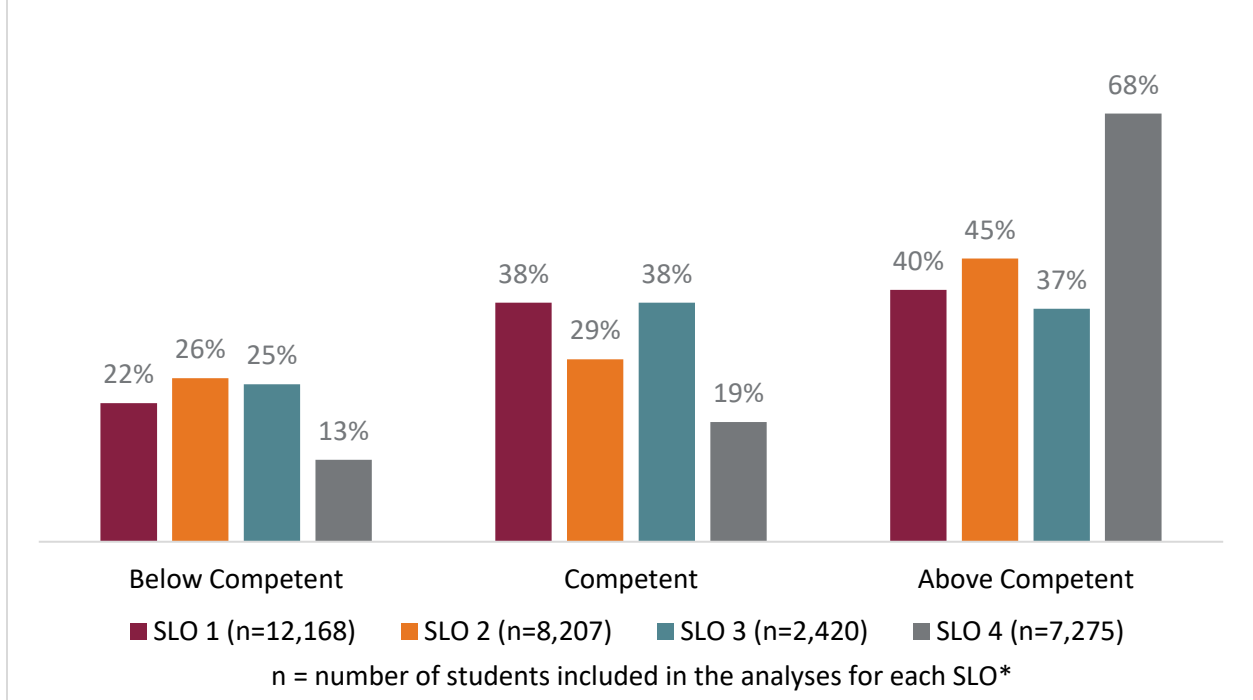
Overall, usable data were obtained from 556 (98%) of the 566 sections submitting data.

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<sup>1</sup> This description of RNS is adapted from the Pathways Implementation Plan approved in 2017.

<sup>2</sup> Data were partially included or excluded due to one or more of the reasons provided on page 3.

### Reasoning in the Natural Sciences: Competency by SLO



\* Values include students who may have been assessed in multiple Pathways courses.

## Core Concept: Quantitative and Computational Thinking

Quantitative and Computational Thinking (QCT) courses are designated as either Foundational or Advanced/Applied. 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 concept must meet a majority of the student learning outcomes (SLOs). Six SLOs are associated with QCT.<sup>1</sup>

**SLO 1:** Explain the application of computational or quantitative thinking across multiple knowledge domains.

**SLO 2:** Apply the foundational principles of computational or quantitative thinking to frame a question and devise a solution in a particular field of study.

**SLO 3:** Identify the impacts of computing and information technology on humanity.

**SLO 4:** Construct a model based on computational methods to analyze complex or large-scale phenomenon.

**SLO 5:** Draw valid quantitative inferences about situations characterized by inherent uncertainty.

**SLO 6:** Evaluate conclusions drawn from or decisions based on quantitative data.

During the Fall 2018 and Spring 2019 semesters, in the Core Concept of QCT, Virginia Tech offered 38 Pathways courses with a total of 325 sections. The following table indicates the percentage and number of offered courses and sections addressing each individual SLO.

	SLO 1	SLO 2	SLO 3	SLO 4	SLO 5	SLO 6
Courses (n=38)	79% (30)	89% (34)	34% (13)	50% (19)	79% (30)	84% (32)
Sections (n=325)	90% (292)	98% (320)	5% (17)	17% (56)	94% (305)	97% (315)

Assessment data were received from 34 courses (89%) and 271 sections (83%). Of the data received:

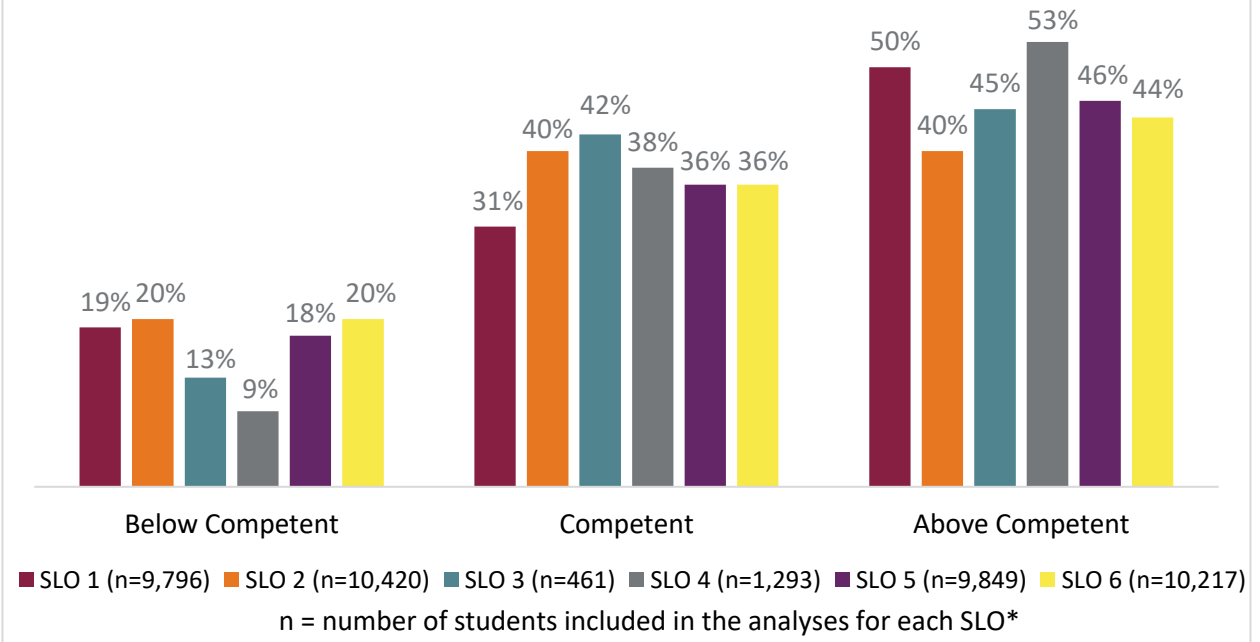
- 259 sections (96%) submitted data for all required SLOs.
- 12 sections (4%) were missing data for one or more required SLOs.
- 243 sections (90%) were fully included; 4 sections (1%) were partially included; and 24 sections (9%) were excluded.<sup>2</sup>

Overall, usable data were obtained from 247 (91%) of the 271 sections submitting data.

<sup>1</sup> This description of QCT is adapted from the Pathways Implementation Plan approved in 2017.

<sup>2</sup> Data were partially included or excluded due to one or more of the reasons provided on page 3.

### Quantitative and Computational Thinking: Competency by SLO



\* Values include students who may have been assessed in multiple Pathways courses.

## Core Concept: Critique and Practice in Design and the Arts

Critique and Practice in Design and the Arts (CPDA) 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 concept recognizes that the creative design process can and should be applied to a broad range of disciplines. Courses or course sequences addressing this concept must meet a majority of the student learning outcomes (SLOs). This Core Concept includes five SLOs.<sup>1</sup>

**SLO 1:** Identify and apply formal elements of design or the arts.

**SLO 2:** Explain the historical context of design or the arts.

**SLO 3:** Apply interpretive strategies or methodologies in design or the arts.

**SLO 4:** Employ skills, tools, and methods of working in design or the arts.

**SLO 5:** Produce a fully developed work through iterative processes of design or the arts.

During the Fall 2018 and Spring 2019 semesters, in the Core Concept of CPDA, Virginia Tech offered 38 Pathways courses with a total of 273 sections. The following table indicates the percentage and number of offered courses and sections addressing each individual SLO.

	SLO 1	SLO 2	SLO 3	SLO 4	SLO 5
Courses (n=38)	82% (31)	58% (22)	76% (29)	71% (27)	55% (21)
Sections (n=273)	77% (211)	24% (65)	56% (152)	84% (228)	65% (177)

Assessment data were received from 30 courses (79%) and 146 sections (53%). Of the data received:

- 131 sections (90%) submitted data for all required SLOs.
- 15 sections (10%) were missing data for one or more required SLOs.
- 88 sections (60%) were fully included; 54 sections (37%) were partially included; and 4 sections (3%) were excluded.<sup>2</sup>

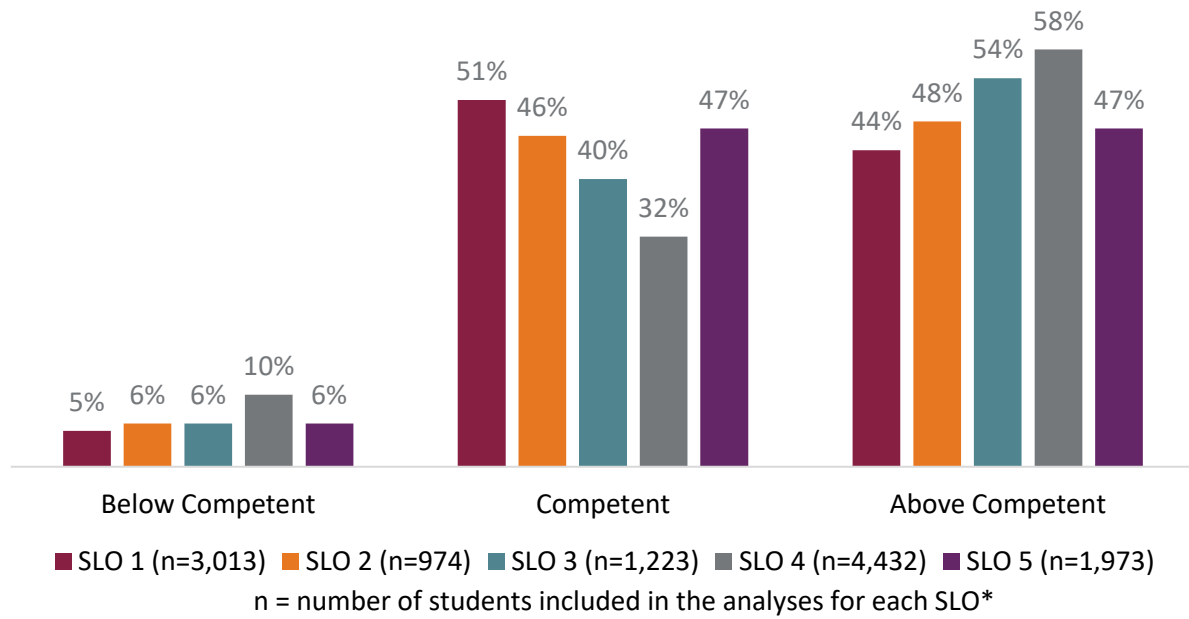
Overall, usable data were obtained from 142 (97%) of the 146 sections submitting data.

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<sup>1</sup> This description of CPDA is adapted from the Pathways Implementation Plan approved in 2017.

<sup>2</sup> Data were partially included or excluded due to one or more of the reasons provided on page 3.

### Critique and Practice in Design and the Arts: Competency by SLO



\* Values include students who may have been assessed in multiple Pathways courses.

## Integrative Concept: Ethical Reasoning

Ethical Reasoning (ER) 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 assess for themselves claims about ethical issues in their personal, public, and professional lives. This Integrative Concept includes three SLOs.<sup>1</sup>

**SLO 1:** Explain and contrast relevant ethical theories.

**SLO 2:** Identify ethical issues in a complex context.

**SLO 3:** Articulate and defend positions on ethical issues in a way that is both reasoned and informed by the complexities of those situations.

During the Fall 2018 and Spring 2019 semesters, in the Integrative Concept of ER, Virginia Tech offered 113 Pathways courses with a total of 683 sections. The following table indicates the percentage and number of offered courses and sections addressing each individual SLO.

	SLO 1	SLO 2	SLO 3
Courses (n=113)	40% (45)	96% (108)	77% (87)
Sections (n=683)	28% (189)	92% (631)	74% (504)

Assessment data were received from 84 courses (74%) and 405 sections (59%). Of the data received:

- 396 sections (98%) submitted data for all required SLOs.
- 9 sections (2%) were missing data for one or more required SLOs.
- 353 sections (87%) were fully included; 8 sections (2%) were partially included; and 44 sections (11%) were excluded.<sup>2</sup>

Overall, usable data were obtained from 361 (89%) of the 405 sections submitting data.

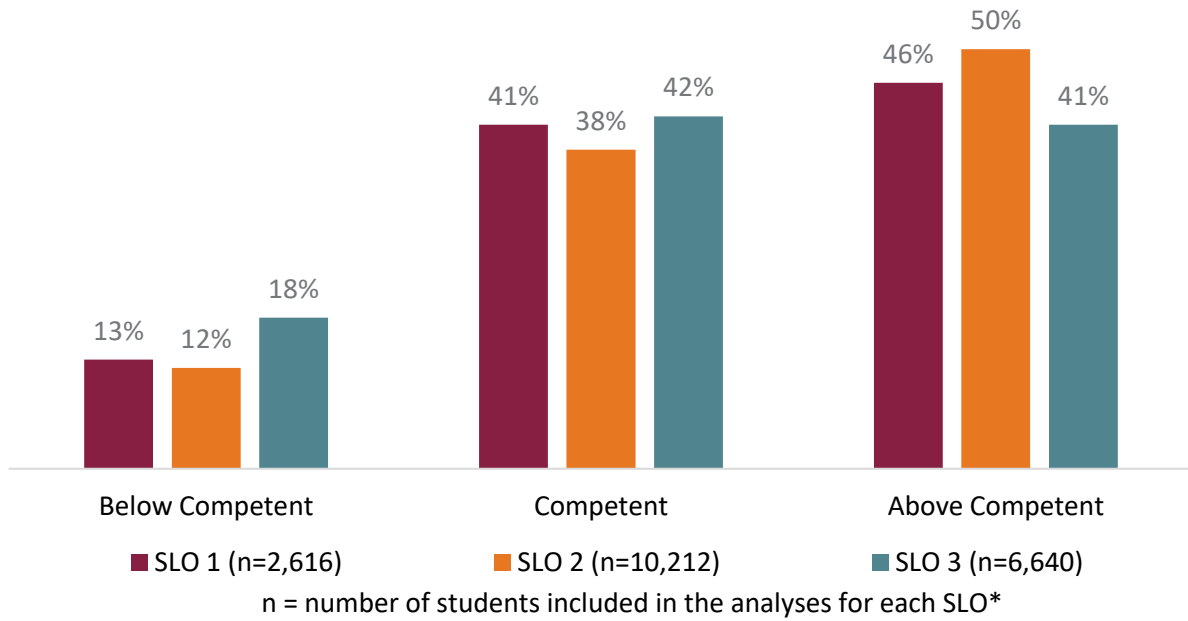
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<sup>1</sup> This description of ER is adapted from the Pathways Implementation Plan approved in 2017.

<sup>2</sup> Data were partially included or excluded due to one or more of the reasons provided on page 3.



### Ethical Reasoning: Competency by SLO



\* Values include students who may have been assessed in multiple Pathways courses.

## Integrative Concept: Intercultural and Global Awareness

Intercultural and Global Awareness (IGA) 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. This Integrative Concept includes three SLOs.<sup>1</sup>

**SLO 1:** Identify advantages and challenges of diversity and inclusion in communities and organizations.

**SLO 2:** Interpret an intercultural experience from both one's own and another's worldview.

**SLO 3:** Address significant global challenges and opportunities in the natural and human world.

During the Fall 2018 and Spring 2019 semesters, in the Integrative Concept of IGA, Virginia Tech offered 207 Pathways courses with a total of 1,558 sections. The following table indicates the percentage and number of offered courses and sections addressing each individual SLO.

	SLO 1	SLO 2	SLO 3
Courses (n=207)	74% (153)	79% (163)	68% (141)
Sections (n=1,558)	72% (1,121)	66% (1,028)	67% (1,047)

Assessment data were received from 153 courses (74%) and 979 sections (63%). Of the data received:

- 898 sections (92%) submitted data for all required SLOs.
- 81 sections (8%) were missing data for one or more required SLOs.
- 884 sections (90%) were fully included; 54 sections (6%) were partially included; and 41 sections (4%) were excluded.<sup>2</sup>

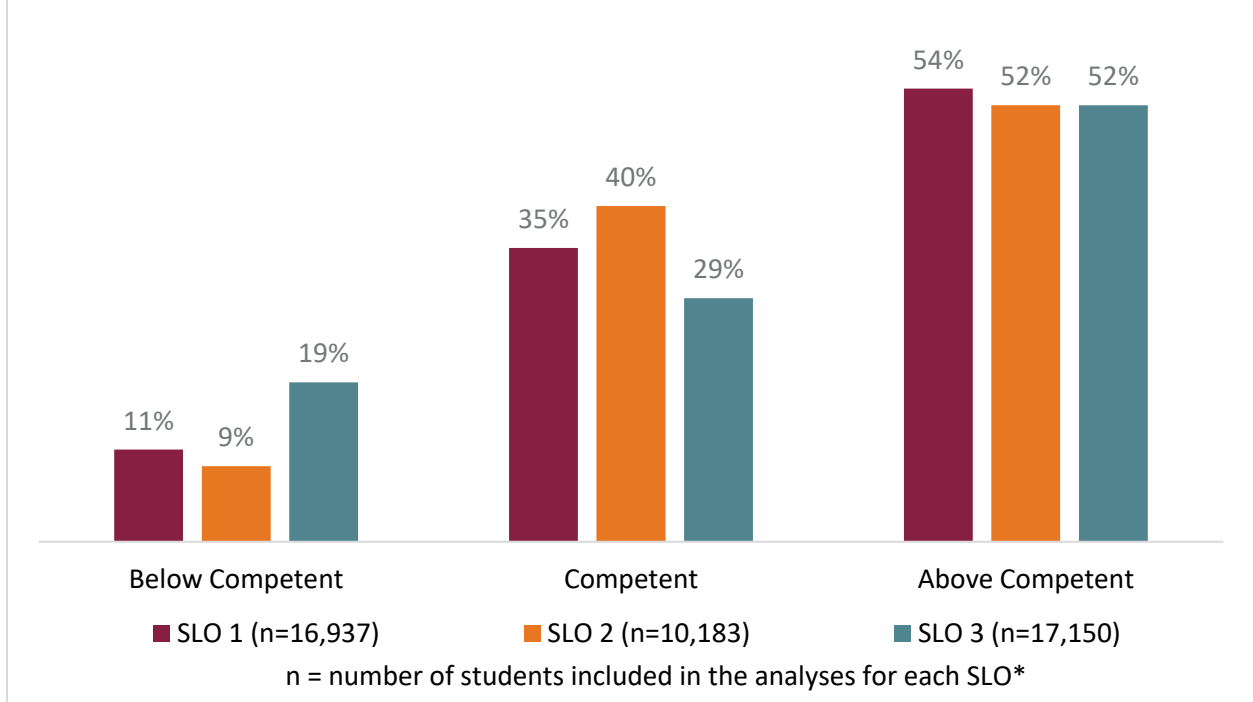
Overall, usable data were obtained from 938 (96%) of the 979 sections submitting data.

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<sup>1</sup> This description of IGA is adapted from the Pathways Implementation Plan approved in 2017.

<sup>2</sup> Data were partially included or excluded due to one or more of the reasons provided on page 3.

### Intercultural and Global Awareness: Competency by SLO



\* Values include students who may have been assessed in multiple Pathways courses.