Office of Institutional Research & Assessment and You

AY21-22 Chairs and Associate Deans Leadership Workshop IV
2/24/2022

The University of Vermont

Office of Institutional Research and Assessment

Mission

The Office of Institutional Research and Assessment serves as a resource to the university community by gathering, analyzing, and providing reports of official university data. The office serves as an impartial unit that supports the mission of the University of Vermont and the administration, faculty, staff, and students by providing high quality data and analysis in order to meet various institutional reporting requirements and for institutional improvement purposes.

Vision

The Office of Institutional Research and Assessment will be an adaptable and proactive office with a commitment to producing sustainable, timely, reliable and valid data analysis that creates and promotes a culture of data-informed decision-making. OIRA will strive to support the UVM community by providing consulting expertise regarding the utilization of data throughout the data analysis lifecycle.

https://www.uvm.edu/oir

Winter, Spring, Summer or Fall…

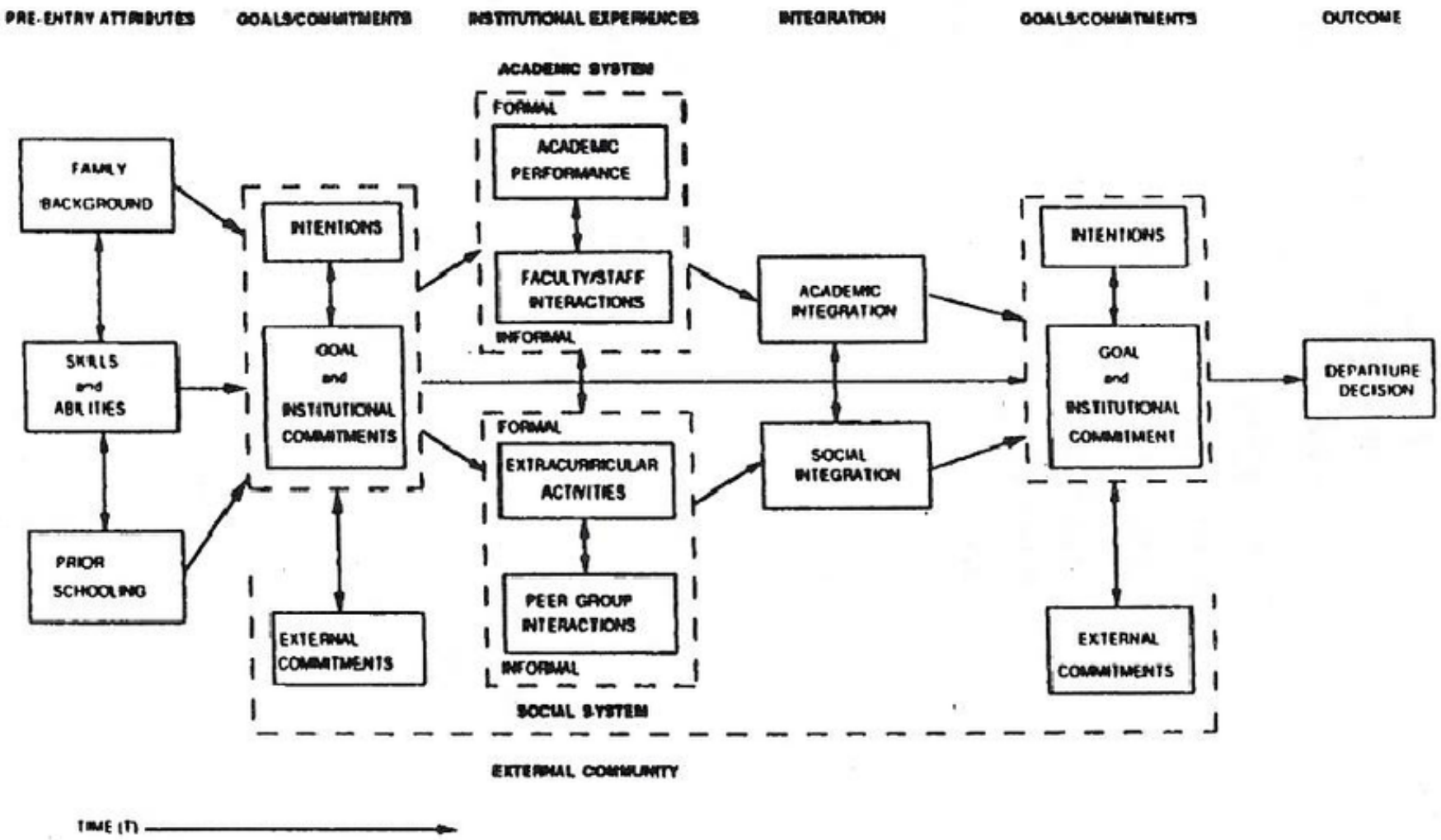
You bring the contextual/ content expertise

OIRA bring the data/assessment expertise

Conceptual Frameworks

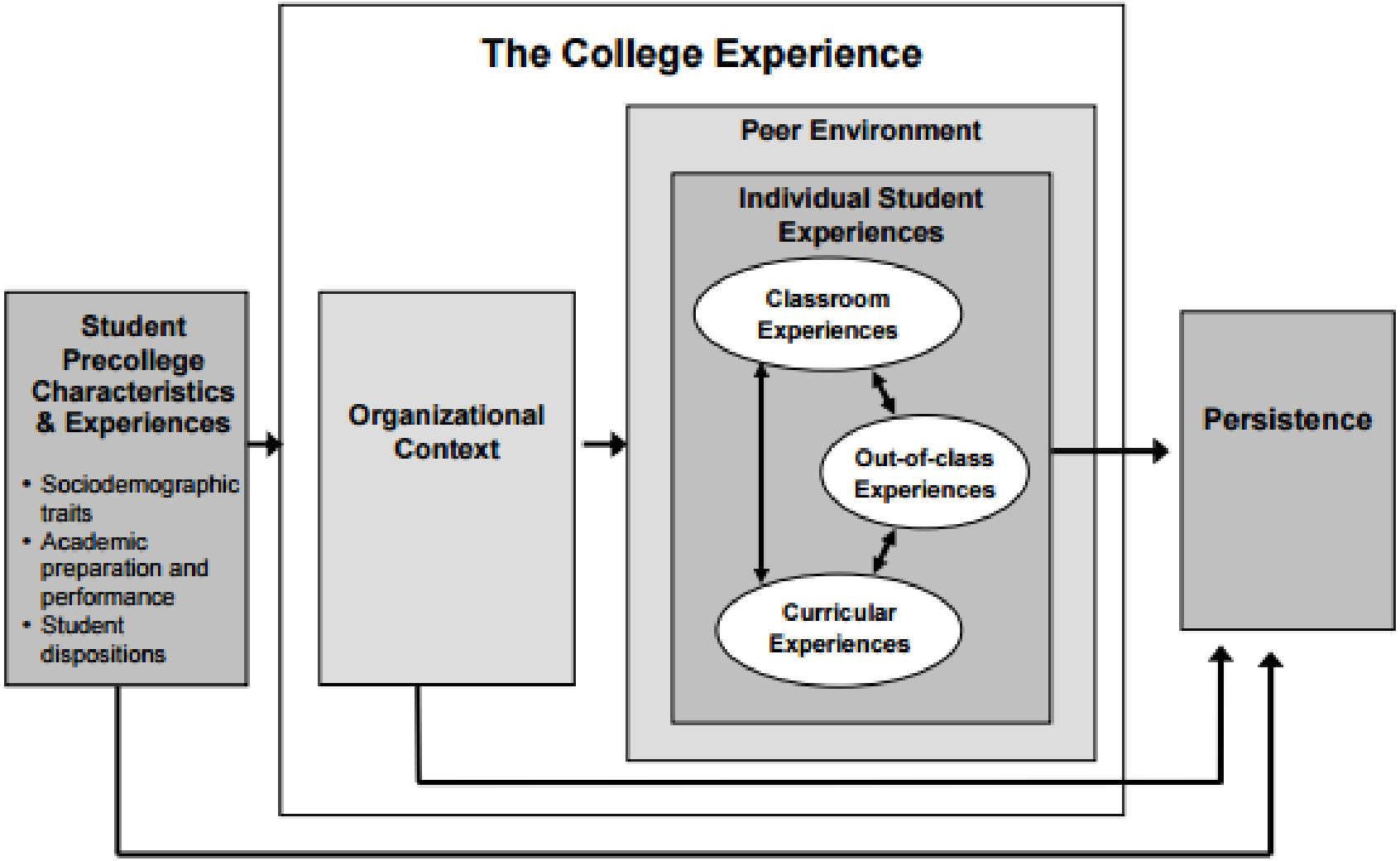
The University of Vermont

Figure 1. *Tinto's Model of Voluntary Student Departure*

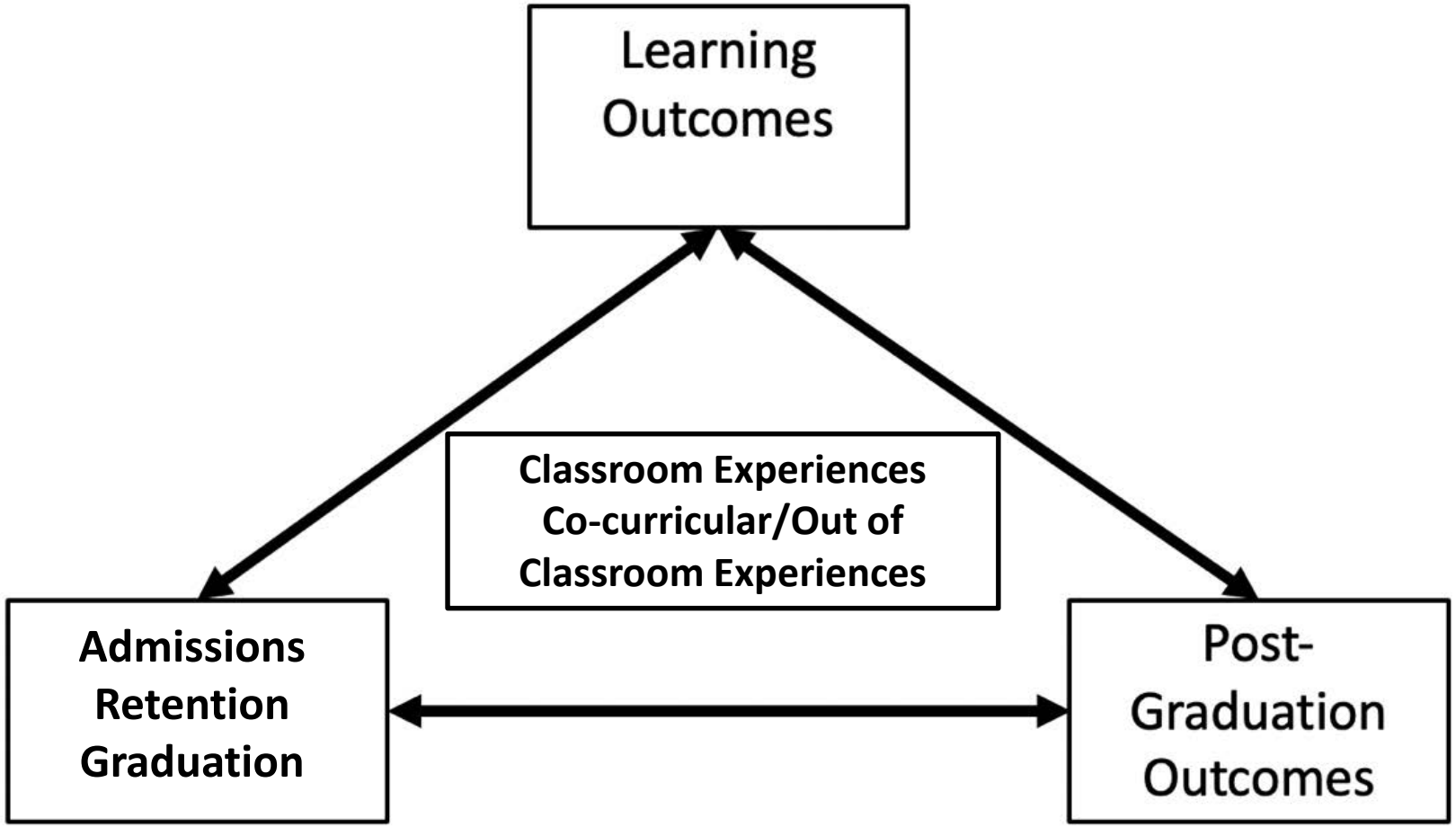


Source: Vincent Tinto. 1993. Leaving College: Rethinking the Causes and Cures of Student Attrition. 2nd edition. Chicago: The University of Chicago Press, p. 114.

A Comprehensive Model of Influence on Student Learning and Persistence



Terenzini, P.T., & Reason, R.D. (2005, November). *Parsing the first-year of college: Rethinking the effects on students.* Paper presented at the Annual Conference of the Association for the Study of Higher Education, Philadelphia, PA.


Learning Outcomes
Classroom Experiences
Co-curricular/Out of Classroom Experiences
Admissions
Retention
Graduation
Post-Graduation Outcomes

Moneyball Metrics

Step 1: Understand the rules of the game

What does it mean to “win”

Step 2: Develop “winning” strategies

Step 3: Develop **efficient** but also **effective** measures

University Cohort-based Metrics

$$\text{Graduation Rate} = \frac{\text{Number of students who completed their program within a specific percentage of normal time to completion}}{\text{All full-time, first-time degree seeking students starting in the fall semester*}}$$

*This is why it is important we find first-time students who are listed in the system as enrolled but did not attend as we do not want them to count against our graduation rate by add/drop day.

College/School Cohort-based Metrics

$$\text{Graduation Rate} = \frac{\text{Number of students who completed their program within a specific percentage of normal time to completion}}{\text{All full-time, first-time degree seeking students } \textbf{within a college/school} \text{ starting in the fall semester}}$$

Retention and Graduation Rates by Adjusted Cohorts

Catamount Data - Office of Institutional Research and Assessment

Return to menu

Catamount Data - UVM Office of Institutional Research

Adjusted Cohort Outcomes - Students who stayed at UVM into the 3rd year and their outcomes

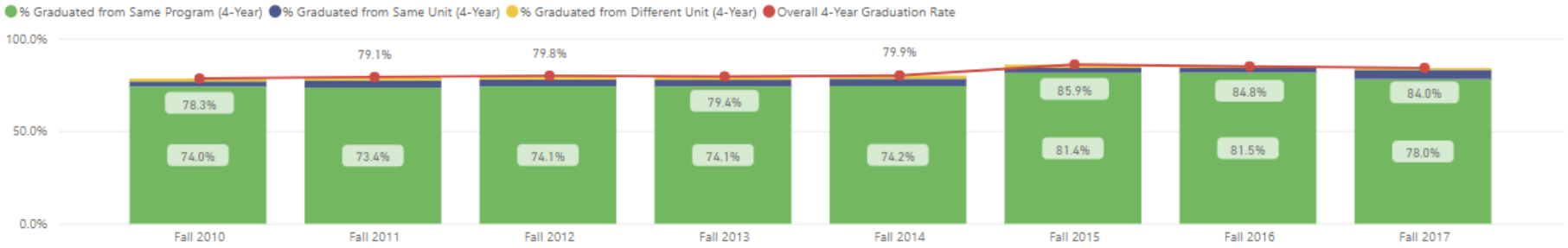
Cohort Term: Fall 2017 | Sex: All | Race/Ethnicity Category: All | Residency: All | College: All

Home

Adjusted Cohort 4-Year Graduation Rates by Program

College	Original Cohort Size	Left Major by 3rd Year	Joined Major by 3rd Year	Adjusted Cohort Size (3rd Year)	Overall 4-Year Graduation Rate	% Graduated from Same Program (4-Year)	% Graduated from Same Unit (4-Year)	% Graduated from Different Unit (4-Year)
CALS	256	118	154	292	87.3%	69.2%	17.5%	0.7%
CAS	1308	928	483	863	81.1%	75.8%	4.5%	0.8%
GSB	203	60	39	182	89.6%	87.9%	0.0%	1.6%
CESS	136	74	95	157	77.1%	72.0%	1.9%	3.2%
CEMS	337	186	136	287	81.2%	76.3%	3.8%	1.0%
RSENR	177	92	81	166	85.5%	83.7%	0.0%	1.8%
CNHS	225	61	57	221	93.7%	91.9%	1.8%	0.0%
Total	**2642**	**1519**	**1045**	**2168**	**84.0%**	**78.0%**	**5.0%**	**1.1%**

4-year Graduation Rates by Adjusted Cohort



Note: The 4-year graduation rates are higher than usual because the adjusted cohort consists of students who stayed at UVM into the third year already.

3rd to 4th Year Retention Rate | 4-year Graduation Rate | 5-year Graduation Rate | 6-year Graduation Rate | Retention and Graduation Rate

https://www.uvm.edu/oir/retention/graduation-planning

OIRA Then and Now

The University of Vermont

2016

College of Agriculture and Life Sciences

Table 3: 2017-18 Ratios of FTE-Students Taught (FTE-S) to GFTE-Faculty by Department of Discipline vs. Instructor Assignments, INCLUDES Thesis and Dissertation for College of Agriculture and Life Sciences

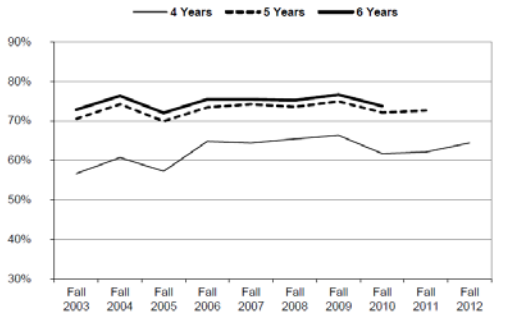
Department	GFTE-Faculty	SCH and FTE Taught By Department of Discipline:						SCH and FTE Taught By Department of Instructor:					
		Student Credit Hours				Student FTE	Student: Faculty Ratio	Student Credit Hours				Student FTE	Student: Faculty Ratio
		UG	G	ND	Total			UG	G	ND	Total		
CALS Dean Office	-	3,966.0	120.0	36.0	4,122.0	138.4	-	3.0	--	--	3.0	0.1	-
Animal and Vet Sci	8.7	13,116.0	475.0	224.0	13,815.0	464.5	15.9	3,882.5	163.5	37.0	4,083.0	137.5	15.8
Com Dev & Applied Economics	22.1	6,017.0	186.0	109.0	6,312.0	211.9	21.0	15,871.5	539.8	223.0	16,634.3	559.0	25.3
Nutrition & Food Sci	10.1	3,655.0	332.0	101.0	4,088.0	139.0	21.0	6,266.0	317.5	116.0	6,699.5	226.0	22.4
Plant & Soil Science	9.0	6,547.0	183.0	43.0	6,773.0	227.3	15.4	4,059.0	409.0	101.0	4,569.0	155.7	17.3
Plant Biology	9.9	234.0	--	--	234.0	7.8	23.0	6,961.0	253.3	249.0	7,463.3	250.9	25.3
ENVS CALS	-	**36,433.0**	**1,296.0**	**513.0**	**38,242.0**	**1,285.5**	-	--	--	--	--	--	-
Total	**59.8**	3,966.0	120.0	36.0	4,122.0	138.4	**21.5**	**37,043.0**	**1,683.0**	**726.0**	**39,452.0**	**1,329.1**	**22.2**

Table 4: 2017-18 Ratios of FTE-Students Taught (FTE-S) to GFTE-Faculty by Department of Discipline vs. Instructor Assignments, EXCLUDES Thesis and Dissertation for College of Agriculture and Life Sciences

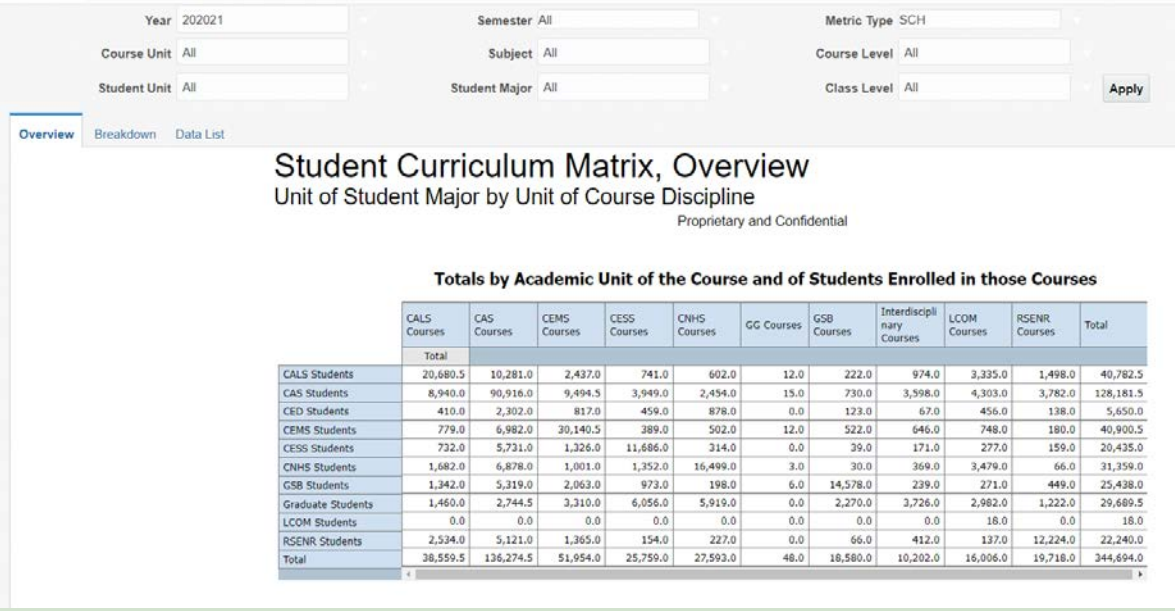
Department	GFTE-Faculty	SCH and FTE Taught By Department of Discipline:						SCH and FTE Taught By Department of Instructor:					
		Student Credit Hours				Student FTE	Student: Faculty Ratio	Student Credit Hours				Student FTE	Student: Faculty Ratio
		UG	G	ND	Total			UG	G	ND	Total		
CALS Dean Office	-	2,898.0	--	--	2,898.0	96.6	-	3.0	--	--	3.0	0.1	-
Animal and Vet Sci	8.7	3,966.0	35.0	36.0	4,037.0	134.9	15.5	3,882.5	101.5	37.0	4,021.0	134.9	15.5
Com Dev & Applied Economics	22.1	13,116.0	447.0	224.0	13,787.0	463.3	21.0	15,871.5	473.8	223.0	16,568.3	556.2	25.2
Nutrition & Food Sci	10.1	6,017.0	159.0	109.0	6,285.0	210.8	20.9	6,266.0	245.5	116.0	6,627.5	223.0	22.1
Plant & Soil Science	9.0	3,655.0	119.0	101.0	3,875.0	130.2	14.5	4,059.0	196.0	101.0	4,356.0	146.8	16.3
Plant Biology	9.9	6,547.0	109.0	43.0	6,699.0	224.2	22.6	6,961.0	179.3	249.0	7,389.3	247.8	25.0
ENVS CALS	-	234.0	--	--	234.0	7.8	-	--	--	--	--	--	-
Total	**59.8**	**36,433.0**	**869.0**	**513.0**	**37,815.0**	**1,267.7**	**21.2**	**37,043.0**	**1,196.0**	**726.0**	**38,965.0**	**1,308.8**	**21.9**

Graduation Rates after Four, Five and Six Years for First-time, First Year Students Entering Fall 2003 to 2012

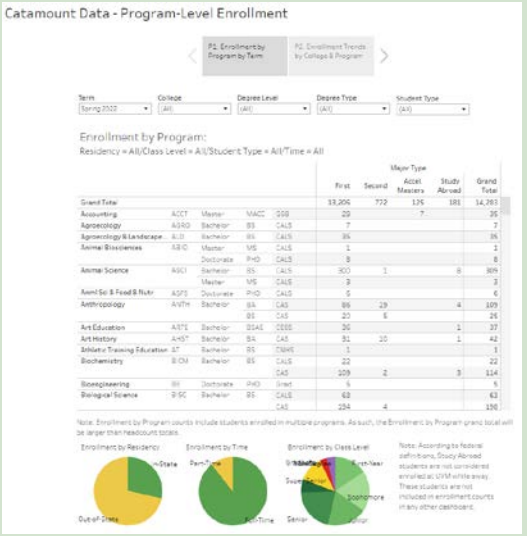
The percent of students who successfully complete their degree programs is one of the University's most important "measures of success." About 73.7% of the first-time, first year class who entered in Fall 2010, the latest class for whom complete data is available, graduated within six years. There has been a steady improvement in the graduation rates since a relative low point of 65.3% in the class entering Fall 1999. It is important to note that UVM graduation rates compare favorably with those at other select public universities.



2022



	CALS Courses	CAS Courses	CEMS Courses	CESS Courses	CNHS Courses	GG Courses	GSB Courses	Interdisciplinary Courses	LCOM Courses	RSENR Courses	Total
	Total										
CALS Students	20,680.5	10,281.0	2,437.0	741.0	602.0	12.0	222.0	974.0	3,335.0	1,498.0	40,782.5
CAS Students	8,940.0	90,916.0	9,494.5	3,949.0	2,454.0	15.0	730.0	3,598.0	4,303.0	3,782.0	128,181.5
CED Students	410.0	2,302.0	817.0	459.0	878.0	0.0	123.0	67.0	456.0	138.0	5,650.0
CEMS Students	779.0	6,982.0	30,140.5	389.0	502.0	12.0	522.0	646.0	748.0	180.0	40,900.5
CESS Students	732.0	5,731.0	1,326.0	11,686.0	314.0	0.0	39.0	171.0	277.0	159.0	20,435.0
CNHS Students	1,682.0	6,878.0	1,001.0	1,352.0	16,499.0	3.0	30.0	369.0	3,479.0	66.0	31,359.0
GSB Students	1,342.0	5,319.0	2,063.0	973.0	198.0	6.0	14,578.0	239.0	271.0	449.0	25,438.0
Graduate Students	1,460.0	2,744.5	3,310.0	6,056.0	5,919.0	0.0	2,270.0	3,726.0	2,982.0	1,222.0	29,689.5
LCOM Students	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0	0.0	18.0
RSENR Students	2,534.0	5,121.0	1,365.0	154.0	227.0	0.0	66.0	412.0	137.0	12,224.0	22,240.0
Total	38,559.5	136,274.5	51,954.0	25,759.0	27,593.0	48.0	18,580.0	10,202.0	16,006.0	19,718.0	344,694.0



Catamount Data Changed the Game

- Dashboards are the report
  - Screenshots and document the filters utilized
  - You are not the only person that has access to these data

- Rethink how we present data
  - Not everything needs to be in a table
  - Sankey diagrams should be presented like X-rays

Gaps

- Diversity Data (I know because these are the requests)
- No Data Governance (we have a benevolent dictator model)
- A Mature Data warehouse
- Sooo much information....

Preview of the Future

- Grade Distribution Dashboard

- Cohort Report (Still in Development -> Look to see as a model for where OIRA is headed in Dashboard Development)

How you can help?

Don’t ask OIRA for data, but ask what data/analysis does OIRA have to help achieve your strategic goals (define the problem you want to solve).

Data and its use in assessment and program review: program-level metrics

Alex Yin, Executive Director, OIRA

Emily Manetta, Provost's Fellow for APR/Assessment

The University of Vermont

Familiarizing yourself with available data

- Chairs and program directors typically seek data in order to conduct periodic program reviews, prepare reports for external accreditors, and to justify staffing proposals
- This type of data can also be used to evaluate curricular design, curricular flow, and form the basis for direct and indirect assessment of and best matching assessment to certain outcomes
- Many program-level metrics at UVM are made available through dashboards via the Office for Institutional Research (OIR)
- This presentation gives you an up-to-date overview of the kinds of data easily available to you through the dashboards, and ideas for how it can be used
- The goal is to encourage frequent and proactive use of this data alongside annual assessment work as a comprehensive review, not only when an APR or accreditation review rolls around

Student retention and graduation

- **How well does your program, department, or major retain students? How long do they take to graduate?**
- Consider reviewing the adjusted retention and graduation rates, which look at retention and graduation rates based on a student's major in their third fall semester
- What is happening in the 3rd and 4th year of your curriculum, and how well are students meeting your stated learning goals in those years?

Adjusted Cohort Retention & Graduation Rates by Program

College	Original Cohort Size	Left Major by 3rd Year	Joined Major by 3rd Year	Adjusted Cohort Size (3rd Year)	3rd to 4th Year Retention Rate	4-Yr Graduation Rate	6-Yr Graduation Rate
⊞ CALS	849	400	740	1189	92.0%	84.4%	95.0%
⊞ CAS	5171	3860	1993	3304	90.6%	77.8%	91.5%
⊟ CEMS	985	652	408	741	94.3%	69.9%	91.8%
⊞ CEM Dean's Ofc	136	132	4	8	75.0%	25.0%	50.0%
⊟ Civil & Env Engineering	255	173	81	163	95.1%	74.2%	96.3%
CE	101	54	63	110	96.4%	71.8%	96.4%
EENV	154	119	18	53	92.5%	79.2%	96.2%
⊞ Computer Science	78	36	65	107	91.6%	59.8%	82.2%
⊞ Elec & Biomed Engineering	57	31	34	60	98.3%	71.7%	91.7%
⊞ Interdisciplinary	173	161	10	22	90.9%	54.5%	90.9%
⊞ Mathematics & Statistics	42	16	66	92	85.9%	71.7%	89.1%
Total	9762	6104	4088	7746	92.4%	79.2%	93.2%

Outcomes by Adjusted Cohort

https://www.uvm.edu/oir/retention/graduation-planning - go to the section on Retention and Graduation Rates by Adjusted Cohorts

Student flow

- **How do students flow into or out of your program?**
- The Student Flow Dashboard shows you what programs are receiving your students when they leave your program. The Student Flow, Semester-to-Semester and Student Flow, Fall Term-to-Fall Term examines student pipeline (what majors your students are coming from) and student pathway (where do your students go).
- You can use Retention and Graduation Rates by Adjusted Cohorts alongside this data to build a comprehensive picture of how program and curricular structure and program-internal advising may influence student flow.
- Are there targeted changes at key points that could aid in earlier recruitment and greater retention? How does this data interact with your assessment of outcomes at various levels to indicate, for instance, where students may be underprepared for advancement?

https://www.uvm.edu/oir/retention/graduation-planning, go to the Student Flow Dashboard.

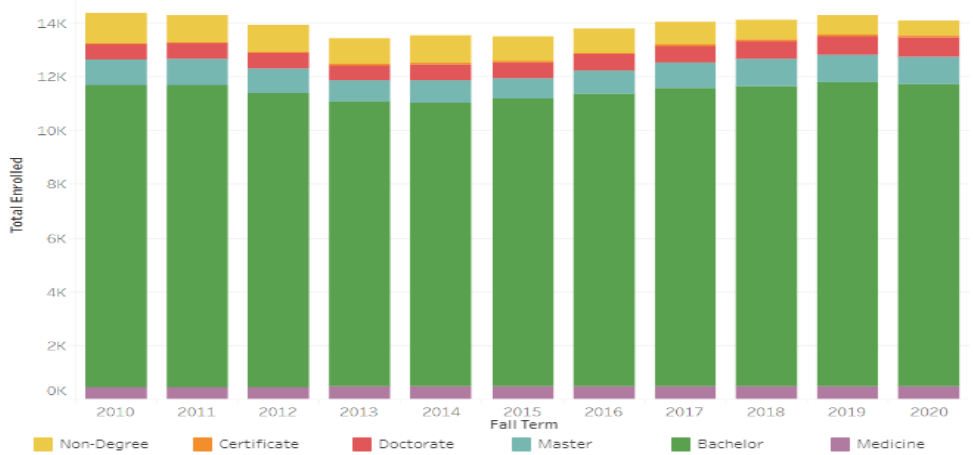
Program growth (1 of 2)

Catamount Data - Program-Level Enrollment

P1. Enrollment by Program by Term | P2. Enrollment Trends by College & Program

Degree Level (All) | College (All) | Program Name (All) | Major Type (All) | Student Type (All)

Fall Enrollment Trends, 10-years:
College = All/Program = All/Major Type = All/Student Type = All



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bachelor	11,232	11,216	10,948	10,598	10,575	10,704	10,876	11,111	11,183	11,313	11,226
Master	953	997	895	795	832	770	867	928	1,011	999	1,015
Doctorate	560	558	569	546	566	596	621	635	653	687	728
Certificate	30	36	44	80	77	68	66	70	61	69	64
Medicine	452	449	446	454	459	457	461	459	466	478	484
Non-Degree	1,140	1,027	1,021	948	1,034	893	893	826	716	744	552
Grand Total	14,367	14,283	13,923	13,421	13,543	13,488	13,784	14,029	14,090	14,290	14,069

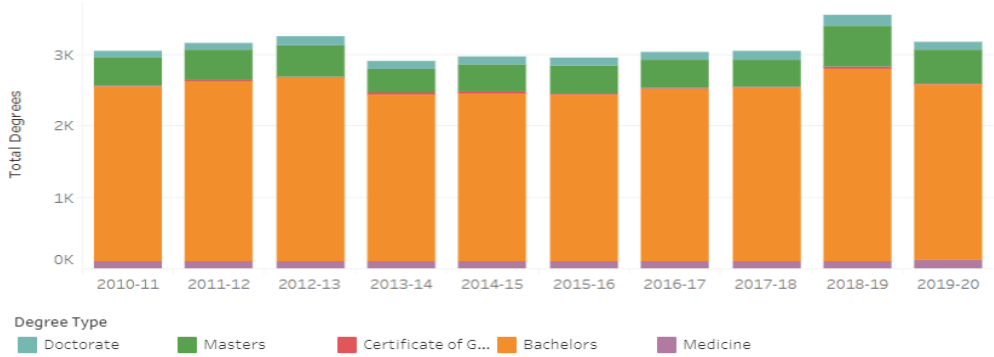
Note: Enrollment by Program counts include students enrolled in multiple programs. As such, the Enrollment by Program grand total will be larger than headcount totals. Study Abroad students are not included in these figures.

Catamount Data - Degree Completion

C1. Degrees Awarded by Level, College, Program | C2. Degrees Awarded 10-Year Trend

College (All) | Program (All) | Residency (All) | Sex (All)

Degrees Awarded:
College = All/Program = All/Residency = All/Sex = All



	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Bachelors	2,422	2,506	2,566	2,319	2,340	2,318	2,390	2,404	2,682	2,445
Certificate of Graduat..	19	19	15	38	31	27	20	17	29	23
Masters	390	425	438	328	362	387	386	387	565	474
Doctorate	97	93	122	111	111	115	107	116	157	112
Medicine	111	114	106	109	113	106	115	112	105	120
Grand Total	3,039	3,157	3,247	2,905	2,957	2,953	3,018	3,036	3,538	3,174

https://www.uvm.edu/oir/program-level-enrollment and https://www.uvm.edu/oir/degrees-awarded

Program growth (2 of 2)

- **How has our program changed in size over time?**
- There are two ways you might measure size: Program Enrollment and Degrees Awarded
- FYI: The program enrollment dashboard shows students with multiple majors and those studying abroad in a given semester, and can be viewed over 10 years
- If your program has changed in important ways (e.g. credits or degrees) have you considered revision to your 3/5-year assessment plan? If you plan to change something, how might that impact outcomes and levels at which you assess student learning?

https://www.uvm.edu/oir/program-level-enrollment and https://www.uvm.edu/oir/degrees-awarded

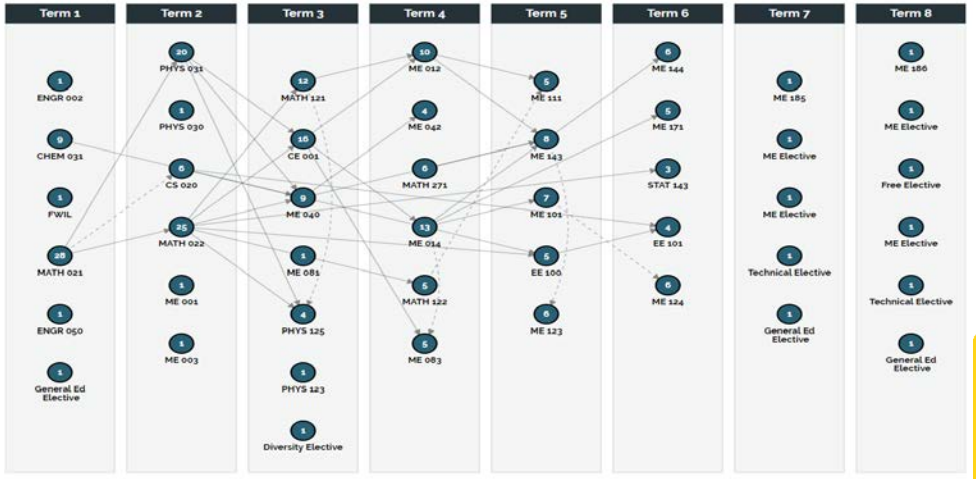
Post-graduation and career outcomes

- **Where do students go when they complete their degree in your program?**
- The Career Center and OIR produce annual reports on students' post-graduation outcomes six-months out. Due to small numbers, the reports do not disaggregate by major.
- The methodology in collecting this information aligns with the National Association of Colleges and Employers (NACE), which provides national benchmarks by programs (https://www.naceweb.org/job-market/graduate-outcomes/first-destination/).
- OIR encourages programs to conduct periodic surveys of their alumni and can help you to design an effective survey instrument; we are currently working to set up a resource hub for this purpose with best practices, tools, and templates available for programs
- Alumni and major surveys can form a key component of indirect assessment efforts for your program

https://www.uvm.edu/oir/career-outcomes

Curricular design (1 of 2)

- **What are quantitative approaches to evaluating curricular design?**
- Curricular Analytics, a free program, allows you to visualize the complexity of your curricula and degrees plans (https://curricularanalytics.org/) -- reach out to OIR for support in creating the files for the visualizations.



Curricular design (2 of 2)

- **What are quantitative approaches to evaluating curricular design?**
- The Student Curriculum Matrix (https://www.uvm.edu/oir/university-department-planning -> go to the section on Student Credit Hours & Matrix Dashboards) allows you to examine who (e.g., by major and class level) is taking your courses and what courses your students are taking.
- This can be helpful in identifying how effectively students progress through your program and whether there are bottlenecks. It can also suggest patterns in the ways in which your program's students fulfill other requirements throughout the university.
- This resource can be used alongside assessment in determining how well the design is meeting program goals and can inform the curriculum mapping portion of your assessment planning or plan revision.

https://www.uvm.edu/oir/university-department-planning

Wrap-up

- Data concerning student pathways through your program, program size, and curricular design work together with what you learn from your assessment to inform a range of decision-making at the program level
- Familiarity with this data and how it changes over time can also allow you to actively manage and evaluate the impact of any changes
- Ideally integrating this kind of data-based program-level evaluation with assessment as an annual practice will also make program review and/or accreditation simpler