He said "Flip" We said "How high?"

Jill Jemison Larner College of Medicine



Objectives

- Define technology ecosystem to support new models of teaching, including flipped classroom, TBL, PBL and others
- Interpret how new models of teaching and learning impact the LCME standard for curriculum monitoring and continuous quality improvement
- Discuss staffing and delivery models for next-generation teaching and learning support



A little history

- University of Vermont College of Medicine
 - Established 1822, 7th oldest medical school in US
 - 120 students per class
 - Vermont Integrated Curriculum implemented in 2003
 - 1 branch campus; LIC program; clinical sites in VT, NY, FL, CT and ME



And then the world changed

UVM Renames Medical College

FRIDAY, SEPTEMBER 23, 2016

for Alumnus After \$100 Million in Gifts

POSTED BY SASHA GOLDSTEIN ON FRUSEP 23, 2016 AT 5:56 PM

EDUCATION



Students beem as the new name is unveiled.

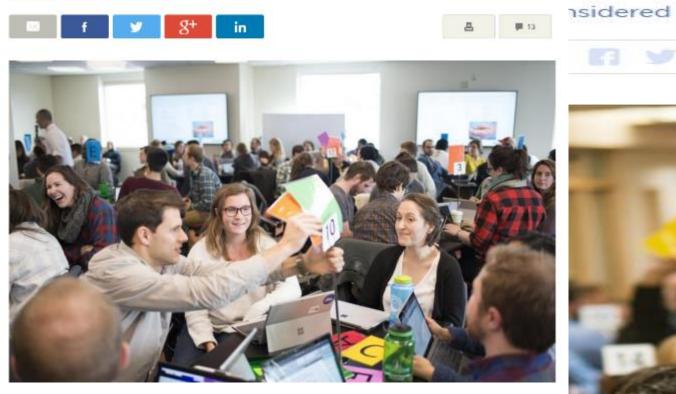
SASHA GOLDSTEIN

The University of Vermont renamed its medical college to honor an alumnus who has donated a total of \$100 million to the school.

Dr. Robert Larner, a Burlington native who went on to have a successful medical career in Los Angeles, committed \$66 million to his alma mater in his



Who needs lectures? Vermont medical school chooses other ways to teach $$\mathbf{1}\,{}_{\rm ET}$$





SAM GRINGLAS





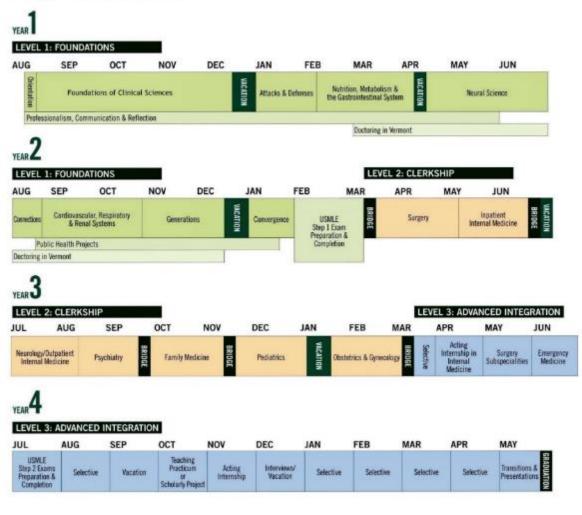
2016

Course	Lecture	Lab	Small Groups*	Patient Contact	Other [†]	Total
Foundations of Clinical Science	152	123	56	38	168	567
Attacks and Defenses	47	2	29	1	86	165
Nutrition, Metabolism and the Gastrointestinal System	78	16	28	3	136	261
Neural Science	114	23	26	6	79	248
Professionalism, Communication and Reflection	3	o	41		5	49
Doctoring in Vermont	5	0	2	32	39	78
Connections	38	4	10	6	26	84
Cardiovascular, Respiratory, and Renal Systems	87	15	44	13	61	220
Generations	82	18	26	9	78	213
Convergence	2	0	32	1	129	164
Public Health Projects	4	0	43	0	1	48
Total	612	231	337	109	808	2097

* Includes case-based or problem solving sessions

† Describe - Self-directed learning, exam reviews, COMET modules, eLearning Modules

Vermont Integrated Curriculum





The players

- Senior Associate Dean for Education, William Jeffries, PhD
- Medical Curriculum Committee curriculum oversight
 - Foundations, Clerkship and Advanced Integration curriculum implementation
- Office of Medical Student Education operations
- Active Learning Task Force "Larner methods," SOPs, policy
- Active Learning Team pedagogical change and instructional design
- Teaching Academy evaluation, assessment and scholarship



Technology services

- Administration CIO, security officer, business administrator
- Infrastructure (5) systems, storage, backup, Office365, desktop
- Applications (2.5) programming and application integration
- Database (1.5) reports and business intelligence
- Ed Tech (4) faculty support, education application development
- AV (2) room design and support
- Technicians (7) hardware and helpdesk
- Supporting
 - 2500 desktops; 500 TB data; 800 full-time faculty; all services except networking
 - ~\$3.5 million total budget



The University of Vermont

The plan?

- "Lecture Free" by 2019
- Approved "Larner Methods"
- Standard Operating Procedures Faculty, Students and Operations
- Scholarship through Teaching Academy
- "Learning Commons"
- Next LCME visit in 2021



What's the tech plan?

- Evolutionary, not revolutionary
 - Data and Analytics
 - Ed Tech infrastructure
 - Ed Tech application support
 - Student computing environment
 - AV/Rooms
- Laying track in front of the train
 - Right now
 - Near term
 - By 2020



We've done this before

- LCME accreditation 2004 named the COMET team a strength of the institution
- LCME accreditation 2013 named the Technology Services unit a strength of the institution, "The responsiveness of the Technology Services unit to the needs of college of medicine faculty, students, and administrators enhances the implementation and evaluation of the medical education program."



Ed Tech infrastructure

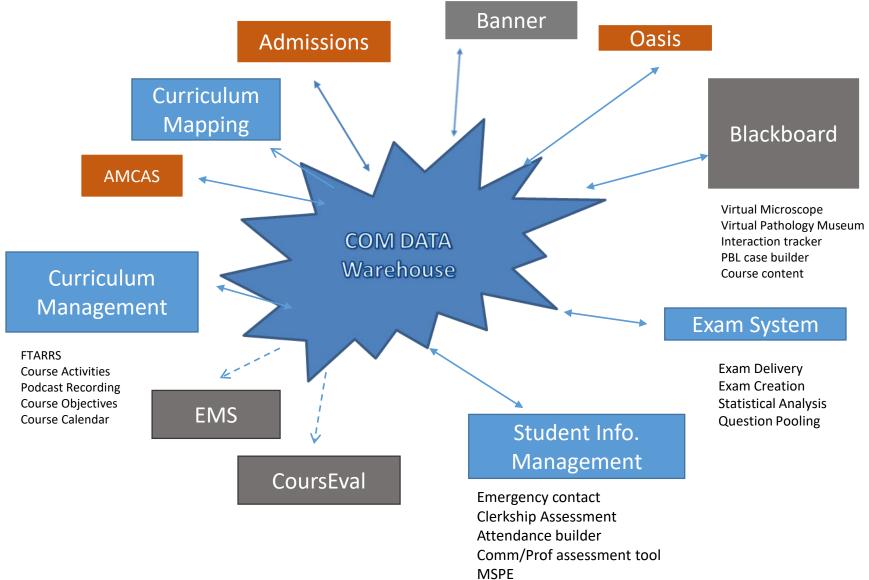
- LMS Blackboard
- Exam System homegrown
- Curriculum Management system homegrown
- Assessment tools TBL, Peer Assessment, Preceptor Assessment
- Competency tracker -- homegrown
- Scheduling Oasis
- MSPE homegrown
- Admissions ZAP



Our philosophy

- Beg, borrow, buy, build
 - Extensive homegrown systems that support unique business needs
 - 2 programmers
 - 1 Data wizard
- But always, always own the data
 - Education data warehouse since the inception
 - Never move data from system to system
 - Role-based access and security







Data and Analytics

- Data warehouse
- Moving from reporting to dashboarding
- Extensive use of data for comparability
- Current project financial modeling for active learning incentives
- Expanding our curriculum mapping

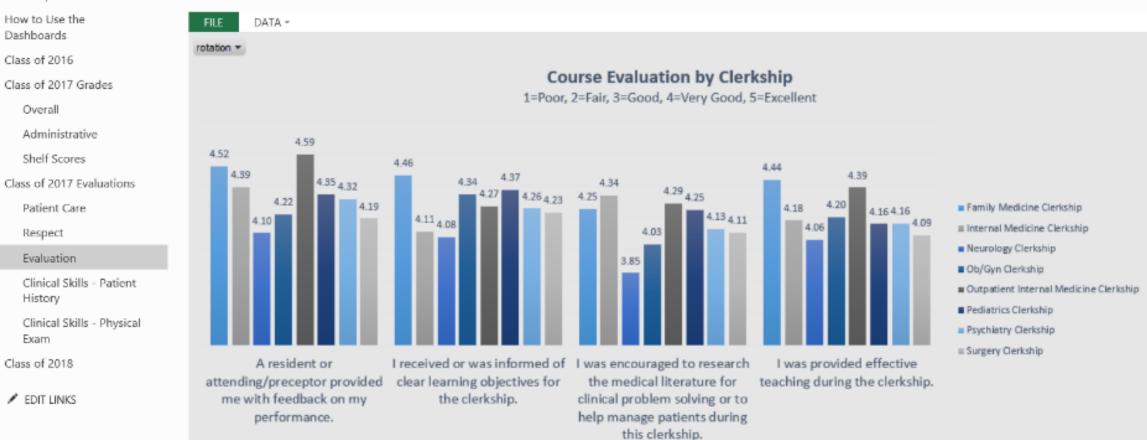


College of Medicine Commons

😲 SF

BROWSE PAG

Clerkship Dashboard Home

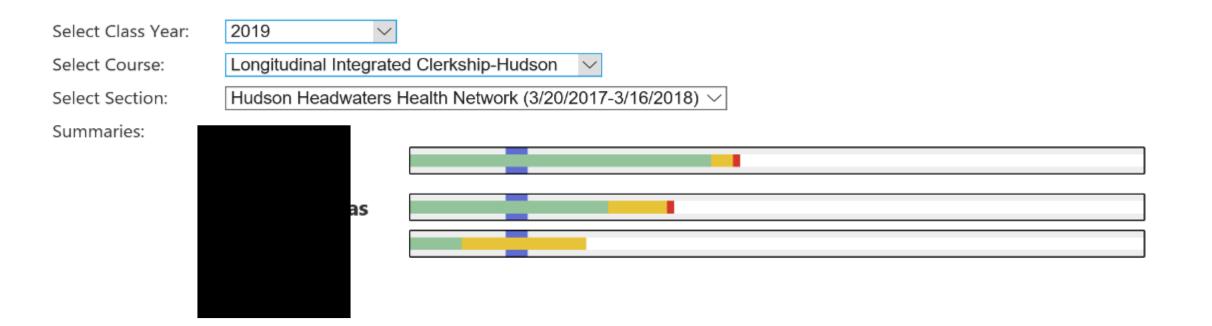




Competency Tracker Admin

Home Manage►

View Rotation Summaries





	Sun 8/26	Mon 8/27	Tue 8/28	Wed 8/29	Thu 8/30	Fri 8/31	Sat 9/1	Fndtns of Clinical Sciences
7am						7:00 - 7:30 Block 1 Ends Session		Pharmacodynamics II
7:30am						Caession		Activity Objective(s): Pre-work
8am						8:00 - 1:00 Self Directed Learning Self-Directed Learning		 Describe the role of the FDA, and outline the process of drug development including the goal of
8:30am		8:30 - 10:30				Self-Directed Learning		each Clinical Trial Phase. 2. Name 5 transmembrane signaling methods by
9am		Warkshap	9:00 - 10:00 Doctoring Skills Lecture Clinical Skills Lecture		9:00 - 9:30 Cell Signaling IV Integrative Review			which drug-receptor interactions exert their effects and give an example of each.
9:30am			Cimical Skills Lecture		9:30 - 10:30 Medical Ethics			 Describe the intracellular mechanisms that mediate receptor desensitization and down-regulation. Describe the role of receptors in generating second
10am			10:00 - 12:00 Doctoring Skills Simulation	HIV Screening Small Group	Case-based Learning			messenger signals through cAMP and phosphoinositides.
10:30am		Pharmacodynamics II	Simulation	Case-based Learning	10:30 - 11:30 Meet with Anatomy Group, Set Goals			Session
11am		Workshop		-	Reflection			 Discuss the benefits and problems created by the FDA regulation of drug development: review its
11:30am	11:45 - 12:45			-	11:30 - 4:00 Independent Learning			historical context and examine its impact on pharmaceutical safety and expense.
12pm	Review the current issue of the WeeklyWire Review		MedEd Center 100 Larner Class	room	Independent Learning			 Compare and contrast the receptor signaling mechanisms through their speed of action, amplification of signal, and feedback regulation.
12:30pm			8/27/2018 10:30 AM - 12:00 PM	1	-			 Provide broad and specific examples of how receptor subtype specificity is critical for drugs to
1pm	l	1:00 - 2:30 The Practice of Evidence-Based Medicine: Introduction	1:00 - 2:00 Cell Signaling III Large Group/Objectives in Action	Diagnostic Testing		1:00 - 3:30 Block 1: Secure Exam		avoid off-target effects. 4. Integrate the dose-effect relationship of a drug
1:30pm	1	Workshop	Large Group/Objectives in Action	Team-Based Learning		Exam		with its potency, specificity, efficacy and therapeutic index to evaluate its usefulness as a therapeutic.
2pm			2:00 - 4:00 Emboulous: The First Four Weeks					
2:30pm	1	2:30 - 4:00 Cell Signaling II	Embryology: The First Four Weeks Workshop					Activity Notes:
3pm	1	Large Group/Objectives in Action		3:00 - 4:30 Pre-Anatomy Reflection Ceremony				
3:30pm	1			Reflection				8/27/2018 10:30 AM - 12:00 PM
4pm					400 - 5:30 Group Decision Making (1/2 class)			MedEd Center 100 Larner Classroom

• •

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The University of Vermont

Search Text:	asthma	
Faculty Last Name:		
Select Course:	All Courses	
Select Class Year:	2021 •	
	Synonym Search	

Search

Activity

Activity	
Asthma	
Pathology of Obstructive Lung Disease	
Neuropharmacology: Autonomic Sympathetic Drugs	
Pharmacology of Rheumatology: NSAIDs and Glucocorticoids	
Respiration: Airflow	
FLIPPED: Public Health - Health Status of Populations	
Histamine, Serotonin Receptor Pharmacology	
Hypersensitivity Reactions: Type 1	
Large Group: Introduction to Clinical Decision Making	
Lab: Clinical Correlations	
Vasculitis	
Introduction to Public Health	
Addiction and Recovery - Opioids	
Case Based: Helminths Pharmacology	
Chronic Inflammation	
Parasitology	
Clinical Skills: Lung Auscultation and Standardized Patient	
Autonomics 3	
Cell Signaling 1	
Cell Signaling IV	
Pharmacodynamics	
Thyroid	
Neuropharmacology: Autonomic Cholinergic Drugs and Toxins	
Tumors of the Nervous System: Cased-Based Discussion	
Intro to Insulin - Past, Present & Future	
Flipped Classroom: Autoimmune Diseases	
Flipped Classroom: Mycology and Anti-Fungal Therapy	
Clinical Application: PFT Intertpretation	
Hypoxemia	
Interstitial Lung Disease	
Lab: Lung I Gross Pathology	
Team-Based Learning: Heart Failure	
Mechanisms of Autoimmunity: Part I	
Osteoarthritis and Infections of the Musculoskeletal System	

	Sciences	
2017 FoCS - Block	1: Exam 2	
2017 FoC5 - Block	<u>2: Exam 1</u>	
Block 3 Secure Exe	m 2 (Class of 2021)	
Block 4: Secure Ex	am 1 (CRR)	
Block 5: Secure Ex	am 1 (Gi and Reproduction)	
Block 6 Secure Exe	en 1	
Learning Object	ive	Activity
	riables that contribute to the steady state plasma concentration (Css).	Phermacokinetics
	ny of the external, middle, and inner ear	Anatomy Module : The har and Cranal Nerves of the Temporal
	of cranial nerve VII and its 3 branches through the temporal bone	Anatomy Module : The Ear and Cranial Nerves of the Temporal
	rative capacity of major faster types	Epped: Inflammation and Repair
	determine how an injury will repair	Flipped: Inflammation and Repair
	(integration of ANS reflexed within the gat, the spinal cord, and brainstein. ance mechanisms forough phase I and II reactions and recognize dimically significant inducers inhibitors of C/P e	Autonomics 1
	of resolution, organization, granulation tissue, and scar.	Eligoed: Inflammation and Repair
	I AK physiology emphasis on control of pupilisine and lens accommodation.	Autonomics 3
	Actually Survey	
	Course: Connections (Dises of 2021) Activity: Fungel information of the Stori (Dave based Learning) Start Time: #/2/2015 10:00 AM Faculty: Or Kith Morkey Group Discussion Leader Locations: Mork of Connect OD Classican	
	Course: Connections (Dass of 2021) Activity: Fungel infections of the tion (Case based Learning) Start Time: 8/27/2015-10:00 AM Faculty: On Kicki Moniey Group Discussion Leader	





Form complete: Click Submit to Bablice evaluation



Incentivizing teaching

Aug 19 - 25, 2018

Wed 8/22

Tue 8/21

Mon 8/20

Thu 8/23

Fri 8/24

BB 830 - 1050

diseases.

Skin: Papulosquamous,

Case-based Learning

E = 10:50 - 12:00

Care-based Learning

00 - 500

190.200

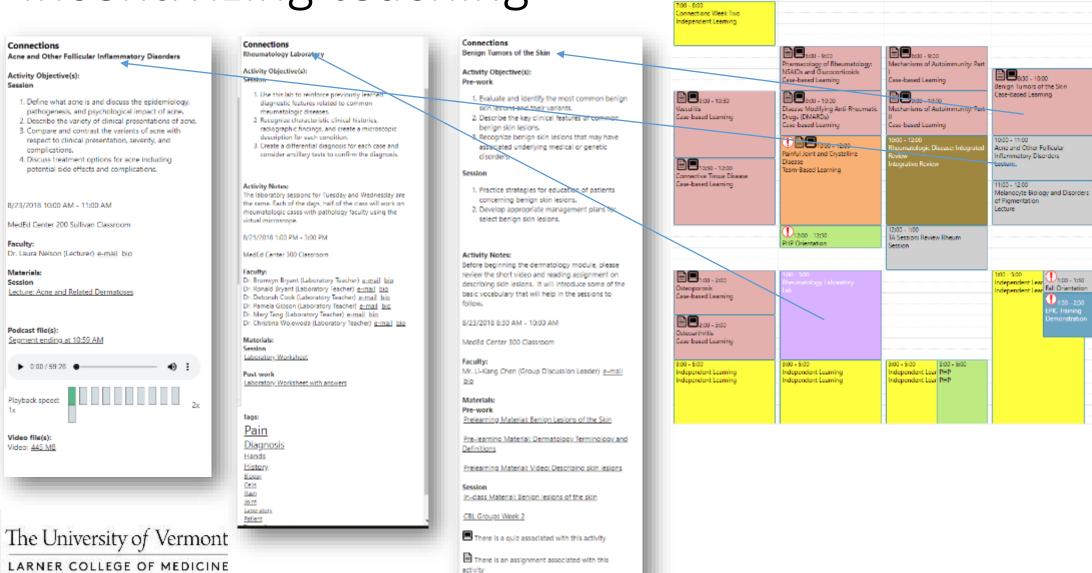
ndependent Learning

Independent Learning

Malignant Tumors of the Skin

Inflammatory Conditions of the

eczematous, and vesiculobullous



That allows us to

Row Labels	SessionLength (Hrs)	FTARRS Contact (hrs)	PrepTime (New)	\$ Value
MD 508 Doctoring in VT: Year 1	3,511.25	39.25	78.50	
MD 540 Fndtns of Clinical Sciences	1,399.67	1,254.33	2,564.17	
MD 550 Orientation	37.25	37.25	86.50	
MD 555 Attacks and Defenses	298.25	285.75	613.50	
MD 556 Nutrition, Metabolism & GI				
Sys	360.75	296.58	703.67	
MD 557 Neural Sciences	666.25	615.25	1,326.50	
MD 558 Connections	200.33	196.50	417.00	
MD 559 Cardio, Respir, & Renal				
System	531.83	504.83	1,069.67	
MD 560 Generations	277.92	272.92	610.33	
MD 561 Convergence	392.00	392.00	784.00	
MD 565 Public Health Projects: Yr 2	56.50	56.50	113.00	
MD 566 Prof, Comm, & Reflection	785.50	785.50	1,571.00	
Grand Total				
	8,517.50	4,736.67	9,937.83	



Which becomes

COM Office of the Dean 224.58 200.58 402.67 COM Admissions 2.50 2.50 5.00 COM Educational Tools 3.50 3.50 7.00 COM Ofc of Med Ed 216.08 192.08 384.17 COM Office of the Dean 2.50 2.50 6.50 Family Medicine 1,262.25 139.25 296.50 Medicine 2,435.42 1,233.75 2,566.50 Medi-Cardiology 65.50 31.50 81.00 Med-Cardiology 70.00 38.00 76.00 Med-Gastroenterology 64.92 27.00 58.50 Med-Hematology Oncology 90.50 58.50 117.00 Med-infectious Disease 72.75 169.50 30.50 Med-Infectious Disease 72.75 169.50 32.50 71.00 Med-Nephrology 32.50 32.50 71.00 32.50 71.00 Med-Infectious Disease 72.75 169.50 32.50 71.00 32.50 71.00 32.50 71.00				
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Med-Cardiology 65.50 31.50 81.00 Med-Dermatology 70.00 38.00 76.00 Med-Endocrinology 85.75 82.00 164.00 Med-Gastroenterology 64.92 27.00 58.50 Med-Gen Internal Med 1,259.92 589.92 1,202.33 Med-Hematology Oncology 90.50 58.50 117.00 Medicine 428.17 60.17 120.33 Med-Immunobiology 15.25 15.25 30.50 Med-Infectious Disease 72.75 72.75 169.50 Med-Nephrology 32.50 32.50 71.00 Med-Pulmonary 205.67 181.67 375.33 Med-Rheumatology 32.00 32.00 76.00 Med-Vascular Biology 12.50 12.50 25.00	Medicine	2 125 12	1 222 75	2 566 50
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Med-Gen Internal Med 1,259.92 589.92 1,202.33 Med-Hematology Oncology 90.50 58.50 117.00 Medicine 428.17 60.17 120.33 Med-Immunobiology 15.25 15.25 30.50 Med-Infectious Disease 72.75 72.75 169.50 Med-Nephrology 32.50 32.50 71.00 Med-Pulmonary 205.67 181.67 375.33 Med-Rheumatology 32.00 32.00 76.00 Med-Vascular Biology 12.50 12.50 25.00				
Med-Hematology Oncology 90.50 58.50 117.00 Medicine 428.17 60.17 120.33 Med-Immunobiology 15.25 15.25 30.50 Med-Infectious Disease 72.75 72.75 169.50 Med-Nephrology 32.50 32.50 71.00 Med-Pulmonary 205.67 181.67 375.33 Med-Rheumatology 32.00 32.00 76.00 Med-Vascular Biology 12.50 12.50 25.00	Med-Gastroenterology	04.92	27.00	56.50
Med-Hematology Oncology 90.50 58.50 117.00 Medicine 428.17 60.17 120.33 Med-Immunobiology 15.25 15.25 30.50 Med-Infectious Disease 72.75 72.75 169.50 Med-Nephrology 32.50 32.50 71.00 Med-Pulmonary 205.67 181.67 375.33 Med-Rheumatology 32.00 32.00 76.00 Med-Vascular Biology 12.50 12.50 25.00	Med-Gen Internal Med	1,259.92	589.92	1,202.33
Medicine 428.17 60.17 120.33 Med-Immunobiology 15.25 15.25 30.50 Med-Infectious Disease 72.75 72.75 169.50 Med-Nephrology 32.50 32.50 71.00 Med-Pulmonary 205.67 181.67 375.33 Med-Rheumatology 32.00 32.00 76.00 Med-Vascular Biology 12.50 12.50 25.00	Med-Hematology Oncology	90.50	58.50	
Med-Infectious Disease 72.75 169.50 Med-Nephrology 32.50 32.50 71.00 Med-Pulmonary 205.67 181.67 375.33 Med-Rheumatology 32.00 32.00 76.00 Med-Vascular Biology 12.50 12.50 25.00		428.17	60.17	120.33
Med-Infectious Disease 72.75 169.50 Med-Nephrology 32.50 32.50 71.00 Med-Pulmonary 205.67 181.67 375.33 Med-Rheumatology 32.00 32.00 76.00 Med-Vascular Biology 12.50 12.50 25.00	Med-Immunobiology	15.25	15.25	30.50
Med-Pulmonary 205.67 181.67 375.33 Med-Rheumatology 32.00 32.00 76.00 Med-Vascular Biology 12.50 12.50 25.00		72.75	72.75	169.50
Med-Pulmonary 205.67 181.67 375.33 Med-Rheumatology 32.00 32.00 76.00 Med-Vascular Biology 12.50 12.50 25.00	Med-Nephrology	32.50	32.50	71.00
Med-Rheumatology 32.00 32.00 76.00 Med-Vascular Biology 12.50 12.50 25.00				
Med-Vascular Biology 12.50 12.50 25.00		205.67	181.67	375.33
	Med-Rheumatology	32.00	32.00	76.00
Molecular Physigy & Biophysics 96.67 84.17 188.33	Med-Vascular Biology	12.50	12.50	25.00
	Molecular Physlgy & Biophysics	96.67	84.17	188.33

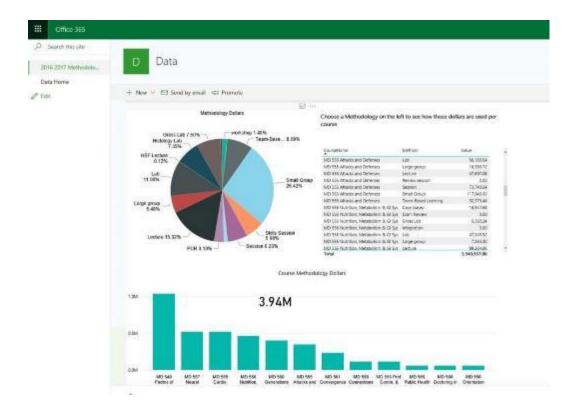


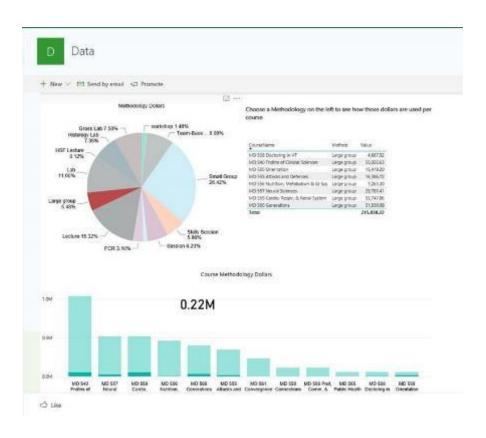
In detail

academicyear	2016/2017				
facultyname	Jones, Dr				
	SessionLength (Hrs)	FTARRS Contact (hrs)	PrepTime (New)	\$ Value	
Large Group/Lecture	34.00	34.00	68.00	\$38,236.57	
Large Group/Review	10.50	0.00	0.00	\$0.00	
Large Group/TBL	3.67	3.67	18.33	\$9,619.71	
Large Group/Workshop	3.00	3.00	15.00	\$9,666.86	
Small Group/Case-Based Instruction	8.00	8.00	16.00	\$12,889.15	
(blank)	1.50	0.00	0.00	\$0.00	
Grand Total	60.67	48.67	117.33	\$70,412.29	



And then will be







But what about the teaching and learning?

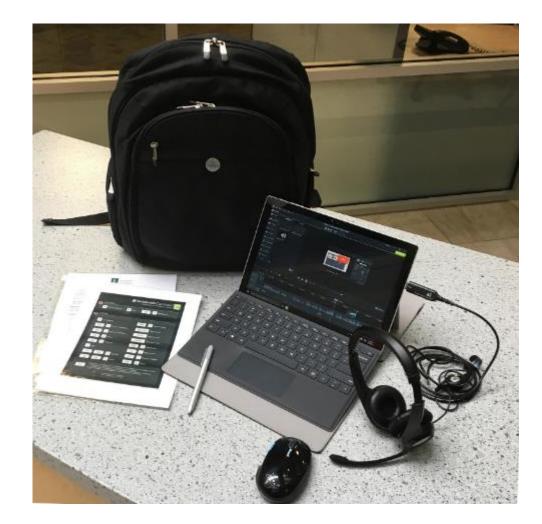
- Ed tech group platforms, systems, tools and support
- Technology services student computers, tablets and applications
- AV room design and support



Ed Tech Support

• 3 FTEs

- 2 educational technologists; 1 multimedia developer
- 1 team lead
- Applications SoftChalk, Camtasia, Turning Technologies, Osmosis
- Training just in time support & workshops











Student support

- Helpdesk in the Larner Learning Commons
 - Walk-up support 7:30 a.m. to 5 p.m.
- Microsoft Surface Pro 4 with four year complete care warranty
- Android table for clerkships
- OneNote training and support
- Office 365 for collaboration
- Carbonite backup



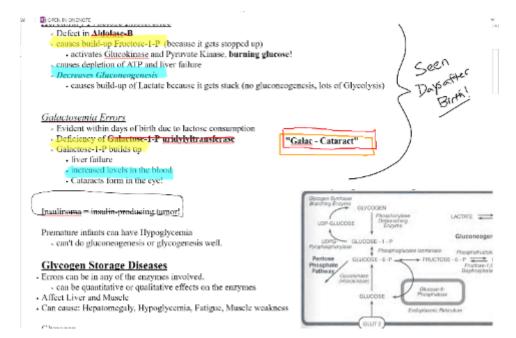






Student computing environment

- Tech training 3 hours in orientation; 1.5 in clerkship orientation
 - Help desk
 - Special topics
- OneNote partner with students on training adoption near 95%
- Technology Professionalism curriculum





AV/Rooms

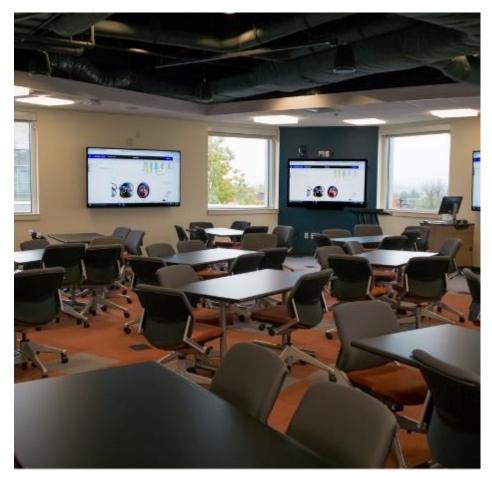




The University of Vermont



- All renovations
- Sound is most important
- Worry about the "feel" of the room
- Training & help button







Larner – 125 p	Reardon – 125 p	Sullivan – 125 p	Carpenter – 280 p
 Distributed seating 9 monitors Sound reinforcement 2 Lavalier 2 handheld mics 20 ceiling mics 	 Distributed seating 7 monitors Sound reinforcement 2 Lavalier 2 handheld mics VC capable – 1 instructor, 1 audience camera 	 Stadium seating 3 Projection screens Sound reinforcement 2 Lavalier 2 handheld mics 3 panel mics VC capable – 1 instructor, 2 audience cameras 	 Stadium seating 1 Projection Screen Sound reinforcement 2 Lavalier 2 handheld mics VC capable – 1 instructor camera





Vendor integration

- Don't duplicate administrative tasks LMS, SIS, scheduling
 - Program niche applications or connecting pieces that add value
- Know what problem you're solving
 - Go into vendor discussions with a clear purpose
 - Watch for vaporware or mission creep
- Test, test, test
 - You know how your students and faculty work test in real world situations
- Own the data.
 - Walk away if you can't get all the data you want.



Questions?

