The Privilege of Undergraduate Teaching

by Stan McCaa

Having the opportunity to teach undergraduate students at Louisiana Tech University is a wonderful privilege. When students begin their collegiate careers, they are embarking on a journey that will, in many cases, affect the rest of their lives. Therefore, it is extremely important that we as teachers help them to make wise decisions both in and out of the classroom.

Undergraduate teaching should be more than just an extension of the education students have received before attending college. In other words, teaching undergraduate courses is much more than just teaching the academics involved. We should be training the young minds of the future to become thinkers and problem solvers. We should help our students to engage in a lifelong pursuit of knowledge and we should motivate them to think beyond that which is already known. As we become more acquainted with our students, we should encourage them to not only succeed in the courses they are taking, but to also succeed as young adult citizens working together in the social aspects of their daily lives. We should encourage them to be the best they can be in all facets of their lives so that they can reach their full potential.

The question that all teachers have is "How do we do this in an ever-changing world?". With technology changing at a rapid pace, keeping up with our students can be somewhat overwhelming. Personally, I still enjoy the face-to-face interaction with my students even though this past year has taught me to be more open-minded about using technology platforms for delivering course content. Trying to learn something interesting about as many students as possible always seems to help students feel involved in the class. Undergraduate students, especially freshmen, can be somewhat intimidated in a college classroom. Therefore, keeping the lines of communication open is extremely important. Always inviting students (past and present) to stop by my office is normally a good way to develop a relationship in which students feel comfortable asking questions. However, many students are busy with other classes, jobs, etc., so technology has become a tool which is very useful for communication. Since we may not be able to visit with all of our

students in a face-to-face setting, checking and responding to emails throughout the day is something we must continue to learn to do in a way that is beneficial to our students.

Ultimately, my goal is to have students enjoy learning mathematics (a very difficult task) and to feel comfortable when seeking help whether in the classroom, in my office, or via some form of technology. We should all want to be the teacher they come back to see many years after they have graduated. We should teach with a desire to change lives in a positive manner. We should teach in order to make a difference in the lives of our students so that they can make a difference in their families, communities, and work places.

Innovations in Teaching

As an undergraduate teacher, we are faced with the challenge of teaching many new students each quarter and this past year has been an exceptional challenge for all of us. Students learn in many different ways so it is important to teach using many different styles. Sometimes technology tools like PowerPoint or Excel may work to reach students. At other times, though, a hands-on project is the technique which grabs the students' attention. I often use a Louisiana Tech student heights project with my statistics students to give real meaning to the content they have learned throughout the quarter. As we have pushed through this past year, technology has become an even greater part of my teaching experience. Using technology such as GeoGebra and Desmos has been a great tool for assisting students in learning the graphs that I would have normally drawn on the board. These tools have aided me in showing students the art of graphing many different functions, etc. My proudest innovation since arriving at Louisiana Tech, though, was helping several blind students to better understand graphing. By simply using paper and my own form of braille (holes punched to represent the points) my blind students were able to accurately plot points with their fingers. As a result, they were able to determine the different types of graphs covered in both College Algebra and Statistics. This sounds like a simple idea (and it was) but it helped them tremendously in making sense of a graph they could not actually see.

Mentoring

Being a mentor is an incredible responsibility. Some of the things we tell our students will be remembered by them for a lifetime. Just as a coach coaches a sport, we as undergraduate teachers have to find the right things to say and do to motivate our students to learn. Whether we are giving advice about coursework or life, what we say should never be taken lightly. Sharing the things we have learned through our own life experiences is one of the ways we can impart wisdom to the next generation of great minds. By helping our students understand how to avoid mistakes, we can hopefully offset problems they may have in the future. An analogy of this is studying history or reading biographies to learn from those who have already come before us. The key difference is that we as teachers are the biography that our students are reading.

Other Pertinent Information

1. I have served as a liaison between the math department and the Bulldog Achievement Resource Center (BARC) to assist with undergraduate learning assistance since the BARC began offering these services.
2. I have taught numerous online courses for the math department which are included in the course information at the end of this document.
3. I have led numerous summer institute workshops for junior high teachers to help them understand the math concepts better and to help them learn new techniques for delivering these concepts to their students. Our current undergraduate students started learning at a very young age, so the goal is to have them better prepared when they attend college.
4. I have also served as the math instructor for the History of Perspectives on Math and Science course offered for our UTeach program. It is co-taught by history, education, chemistry, physics, and math instructors.

5. I helped to develop the Actuarial Science minor for the math department in an effort to assist students interested in pursuing a career in actuarial studies. I have also recently worked with a colleague to propose an actuary certificate program.
6. Beginning in 2013, I have been one of several Tech instructors for numerous dual enrollment courses including Math 099, Math 100, Math 101, Math 112, and Stat 200.
7. I have taught First-Year Experience courses each fall since 2011 and have been a part of the Bridge to Bulldog program since 2016.
8. I have been teaching numerous classes for the Honors College including College Algebra, Calculus I, Calculus II, and First Year Experience.

Undergraduate Course Information Since 2003			
Summary by Class	**Course Description**	**Enrollment**	**Retention %**
Math 099	Developmental Math	1018	*93.81%
Math 100	College Algebra	1338	79.60%
Math 101	College Algebra	255	84.31%
Math 102/103	Applied Algebra	131	97.71%
Math 112	Trigonometry	901	81.24%
Math 125	Algebra for Management and Social Sciences	890	79.44%
Math 130	Applied Algebra	8	100%
Math 212	Applied Technical Mathematics with Calculus	33	90.91%
Math 223	Applied Calculus for Electrical Technology	12	100%
Math 240	Pre-Calculus	1489	81.53%
Math 241	Calculus I	523	92.16%
Math 242	Calculus II	52	84.62%
Math 315	Mathematical Interest Theory	20	100%
Stat 200	Statistics	1713	88.62%
TOTALS:		**8383**	**85.05%**

*Students are typically not allowed to withdraw from Math 099.

Detailed Analysis of Courses Taught in the Last 4 Years with Retention/Evaluation Information				
Quarter	**Course**	**Enrollment**	**# of Retained Students**	**Instructor Rating**
Spring 2017	Math 100	38	29	3.5
Summer 2017	Math 099	7	7	N/A
Summer 2017	Math 103	26	26	N/A
Summer 2017	Math 112	17	14	N/A
Fall 2017	Math 100	44	36	3.9
Fall 2017	Math 112 (2 Sections)	99	81	3.9, 4.0
Fall 2017	Stat 200	40	38	3.7
Winter 2018	Math 099	30	30	4.0
Winter 2018	Math 101	45	34	3.8

Winter 2018	Math 112	44	34	4.0
Winter 2018	Math 125	29	24	4.0
Winter 2018	Math 241	19	19	3.9
Spring 2018	Math 100	43	34	3.8
Spring 2018	Stat 200	41	35	3.4
Spring 2018	Math 315	6	6	3.8
Summer 2018	Math 099	4	4	N/A
Summer 2018	Math 103	24	24	N/A
Summer 2018	Math 112	17	14	N/A
Fall 2018	Math 100 (2 Sections)	79	70	4.0, 3.8
Fall 2018	Math 112	42	30	4.0
Winter 2019	Math 099	20	19	3.0
Winter 2019	Math 112	43	33	4.0
Winter 2019	Math 125	26	16	4.0
Winter 2019	Math 241 (2 Sections)	78	75	4.0, 3.8
Spring 2019	Math 099	11	10	NR
Spring 2019	Math 240 (2 Sections)	98	83	3.7, 3.8
Spring 2019	Stat 200	43	40	3.7
Summer 2019	Math 103	18	18	N/A
Summer 2019	Math 112	18	11	N/A
Fall 2019	Math 099	30	28	4.0
Fall 2019	Math 100 (2 Sections)	73	53	4.0, 3.7
Winter 2020	Math 099	18	17	4.0
Winter 2020	Math 125 (2 Sections)	30	18	4.0, NR
Winter 2020	Math 240 (2 Sections)	80	61	4.0, 4.0
Winter 2020	Math 241	29	28	3.8
Spring 2020	Math099	17	16	N/A
Spring 2020	Math 240 (2 Sections)	83	71	N/A
Spring 2020	Stat 200	42	38	N/A
Summer 2020	Math 099	8	7	N/A
Summer 2020	Math 103	15	15	N/A
Summer 2020	Stat 200	35	26	N/A
Fall 2020	Math 099	39	34	4.0
Fall 2020	Math 100 (2 Sections)	86	66	4.0, 3.7
Winter 2021	Math 099	33	32	3.3
Winter 2021	Math 240	37	31	4.0
Winter 2021	Stat 200 (2 Sections)	50	44	4.0, 3.9
Winter 2021	Math 241	26	23	4.0
Spring 2021	Math 099	29	*27	N/A
Spring 2021	Math 125	40	*39	N/A
Spring 2021	Math 240	42	*39	N/A
Spring 2021	Stat 200	41	*40	N/A
TOTALS for Last 4 Years:		**# of Students Taught**	**# of Students Retained and %**	**Average Rating**
	61 Classes	**1932**	**1647**	**3.85**
			85.25%	

N/A = Not Applicable due to not having the information (summer courses or courses not completed yet, missing data, etc.). NR = No Ranking was given for this class. *Before the withdrawal date so data might change.