AEB 6106: Microeconomic Principles/Analysis
Fall 2015

Instructor Information:
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Office Hours: Mondays 3:00 - 4:00 PM, Thursdays 10:30 - 11:30 AM in 1183 MCCA

Course Logistics:
Tuesdays 8:30 – 10:25
Thursdays 9:35 – 10:25
Classroom: Turlington 2334

Course Description:
This course provides students with an in-depth examination of a variety of topics in microeconomic theory including consumer and producer theory, uncertainty, game theory, asymmetric information, externalities, and public goods. We will use both mathematical and graphical methods to illustrate concepts with increased emphasis placed on mathematical rigor. We will use various application assignments to further develop concepts.

Course Objectives:
By the end of this course, each student should be able to do the following:
1) Apply mathematical concepts such as the Envelop Theorem and Implicit Function Theorem to economic problems.
2) Solve constrained optimization problems.
3) Set up and solve the primal and dual consumer and producer optimization problems.
4) Build economic models to answer research questions.

Required Knowledge:
Students are expected to know how to graph basic equations and take derivatives. If this knowledge has gotten rusty, it is the student's responsibility to re-learn these skills.

Required Textbook:
Nicholson, W. Any Year/Edition. *Microeconomic Theory: Basic Principles and Extensions*. South-western, Thomson. (All editions have largely the same material but may vary by chapter number and applications)

UF Grading Policy:
For information on current UF policies for assigning grade points, see https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Course Grade and Assignments:
Your grade will be determined by

- Three problem sets (15% in total, 5% each)
- Three in-class application exercises (15% in total, 5% each)
- Two writing assignments (20% total, 10% each)
- Three exams (45% total, 15% each)
- Effort (5%)

Letter grades will be assigned as follows:
A = 93 and higher
A- = 90 – 92
B+ = 87 – 89
B = 83 – 86
B- = 80 – 82
C+ = 77 – 79
C = 73 – 76
C- = 70 – 72
D+ = 67 – 69
D = 63 – 66
D- = 60 – 62
E = less than 60

Problem Sets:
There will be a total of 3 problem sets. Students are encouraged to discuss problems with others but you are expected to write up your own assignments. Please write on your assignment the names of students with whom you discussed the assignment. Writing up assignments individually implies that assignments or any portion of the assignments will not be identical. Problem sets are due at the start of class, and late problem sets will not be accepted. Make-up work for missed problem sets will not be given. If a student is absent when an assignment is due, (s)he is still responsible for making sure it gets turned in at or before the start of class. The book provides many practice problems with answers to odd-numbered questions. Students should take advantage of this resource for additional practice problems. I am also happy to help with even-numbered problems for which solutions are not available.

Writing Assignments:
The best way to learn economic theory is to apply it. For each writing assignment, you will be given a research question. You will be asked to construct an economic model that could be used to answer the research question. You will also need to provide the mathematical assumptions that your model requires to answer the question. Research questions will be decided after learning about students' interests. Students will have two weeks to complete the assignment once it has been assigned. Assignments are due at the start of class, and late writing assignments will not be accepted. We will spend the class period in which

assignments are due discussing how each student approached the problem. Students should be prepared to spend a few minutes presenting their model.

In-Class Application Exercises
We will have three in-class application exercises. For each, students will be asked to find an article in the popular press that discusses a phenomenon that could be explained with course models. Students will be asked to post their article 48 hours in advance of class and look through all other students' posts. In class, you will be put in groups and randomly assigned to another group's posts, and you will pick one application to address. We will utilize our double class period day to ensure that students have enough time to develop models and then share them with the class. Students will be graded on the appropriateness of their article (25% of exercise grade), participation in their group's work (25% of exercise grade), and the final model (50% of exercise grade). If a serious, unforeseen, and documentable situation arises that prevents a student from participating in any of the application exercises, the average of the other 2 exercise grades will be entered for the missed exercise.

Exams:
There will be three exams covering portions of the course material. The third exam will occur during the final exam period for the course which is scheduled for Tuesday, December 15, 7:30AM – 9:30AM (Sorry, I didn't pick the time!). There will be no make-up exams. If a serious, unforeseen, and documentable situation arises that prevents a student from taking any of the exams, the average of the other 2 exams will be entered for the missed exam.

Effort:
This portion of the grade used to be titled "participation." After researching about the effects of rewarding the learning process instead of rewarding learning outcomes, I have changed this to "effort." Please see the attached article for more information on this line of research. You will be rewarded for demonstrating effort in this class. Effort includes, but is not limited to, the following:

- Attendance: Attending class and actively participating in activities, asking questions, and providing comments and insight regarding course material are the basis of the learning process.
- Arriving on time: I realize the class is early, but late arrivals impede your learning process as well as the learning process of your classmates. Tardiness will result in lowered effort scores, with the penalty increasing with each day of tardiness.
- Engagement: Use of cell phones, laptops for non-noting takes purposes, etc. during class interferes with your learning process and will result in lowered effort scores.
- Time and energy spent on assignments and exams: Assignments and exams are meant to be learning experiences. There is little learning benefit from

rushing through them at the last minute. Rushed, sloppy, and/or "bare bones" answers demonstrate a lack of effort.

- Utilizing office hours for additional help or clarification: Most students will face at least some material that they do not immediately understand. Following up with questions during office hours is a great way to gain a better understanding.

Academic Honesty:
Any student found to be in violation of the Student Honor Code will receive, as a minimum penalty, a grade of "0" on the assignment or exam. Students may also be asked to attend seminars on ethical decision making and/or avoiding plagiarism.

Attendance:
Attendance counts towards your effort grade, so students are strongly encouraged to attend class. If circumstances cause an extended absence from class, please come talk to me in advance.

Course Outline:
I. Choice and Demand
1. Preferences and Utility (Ch. 3)
2. Utility Maximization (Ch. 4)
3. Income and Substitution Effects (Ch. 5)
4. Demand Relationships Among Goods (Ch. 6)

II. Production and Supply
5. Production Functions (Ch. 7)
6. Profit Maximization (Ch. 8)
7. Cost Functions (Ch. 9)

III. Competitive Markets
8. Partial Equilibrium Competitive Model (Ch. 10)
9. Welfare Analysis (Ch. 11)

IV. Imperfect Competition
10. Monopoly (Ch. 12)
11. Imperfect Competition (Ch. 14)
12. Pricing Models (Ch. 15)

V. Uncertainty, Information, and Externalities (We will likely not get through all material in this section. When we arrive here, I will poll the class to determine which topics to cover)
13. Uncertainty and Risk Aversion (Ch. 18)
14. Information (Ch. 19)
15. Externalities and Public Goods (Ch. 20)
16. Political Economics (Ch. 21)

University Policies

Academic Honesty:
As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*" You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "*On my honor, I have neither given nor received unauthorized aid in doing this assignment.*"

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php.

Software Use:
All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources
Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,* **www.counseling.ufl.edu/cwc/**
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Training Programs
  - Community Provider Database
- *Career Resource Center,* First Floor JWRU, 392-1601, **www.crc.ufl.edu/**

Students with Disabilities Act

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation

0001 Reid Hall, 352-392-8565, **www.dso.ufl.edu/drc/**

Tentative Schedule of Assignments and Exams
Dates subject to change based on progression through material.

	Week	Mon	**Tues**	Wed	**Thurs**	Fri
Aug	1	24	**25** **First Day of Class**	26	**27**	28
Sept	2	31	**1**	2	**3** **PS 1 Given**	4
	3	7	**8**	9	**10**	11
	4	14	**15**	16	**17** **PS 1 Due**	18
	5	21	**22** **In-Class Application**	23	**24**	25
Oct	6	28	**29** **Exam 1**	30	**1**	2
	7	5	**6** **Writing Assignment 1 Given**	7	**8**	9
	8	12	**13**	14	**15** **PS 2 Given**	16
	9	19	**20** **Writing Assignment 1 Due**	21	**22** **PS 2 Due**	23
	10	26	**27** **In-Class Application**	28	**29**	30
Nov	11	2	**3** **Exam 2**	4	**5**	6
	12	9	**10**	11	**12**	13
	13	16	**17** **PS 3 Given**	18	**19** **Writing Assignment 2 Given**	20
	14	23	**24** **PS 3 Due**	25	**26** **No Class**	27
Dec	15	30	**1** **In-Class Application**	2	**3**	4
	16	7	**8** **Last Day of Class** **Writing Assignment 2 Due**	9	**10**	11

Final Exam: December 15, 7:30AM – 9:30AM

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http://www.ascd.org/publications/educational-leadership/oct07/vol65/num02/The-Perils-and-Promises-of-Praise.aspx

The Perils and Promises of Praise

Carol S. Dweck

The wrong kind of praise creates self-defeating behavior. The right kind motivates students to learn.

We often hear these days that we've produced a generation of young people who can't get through the day without an award. They expect success because they're special, not because they've worked hard.

Is this true? Have we inadvertently done something to hold back our students?

I think educators commonly hold two beliefs that do just that. Many believe that (1) praising students' intelligence builds their confidence and motivation to learn, and (2) students' inherent intelligence is the major cause of their achievement in school. Our research has shown that the first belief is false and that the second can be harmful—even for the most competent students.

As a psychologist, I have studied student motivation for more than 35 years. My graduate students and I have looked at thousands of children, asking why some enjoy learning, even when it's hard, and why they are resilient in the face of obstacles. We have learned a great deal. Research shows us how to praise students in ways that yield motivation and resilience. In addition, specific interventions can reverse a student's slide into failure during the vulnerable period of adolescence.

Fixed or Malleable?

Praise is intricately connected to how students view their intelligence. Some students believe that their intellectual ability is a fixed trait. They have a certain amount of intelligence, and that's that. Students with this fixed mind-set become excessively concerned with how smart they are, seeking tasks that will prove their intelligence and avoiding ones that might not (Dweck, 1999, 2006). The desire to learn takes a backseat.

Other students believe that their intellectual ability is something they can develop through effort and education. They don't necessarily believe that anyone can become an Einstein or a Mozart, but they do understand that even Einstein and Mozart had to put in years of effort to become who they were. When students believe that they can develop their intelligence, they focus on doing just that. Not worrying about how smart they will appear, they take on challenges and stick to them (Dweck, 1999, 2006).

More and more research in psychology and neuroscience supports the growth mind-set. We are discovering that the brain has more plasticity over time than we ever imagined (Doidge, 2007); that fundamental aspects of intelligence can be enhanced through learning (Sternberg, 2005); and that dedication and persistence in the face of obstacles are key ingredients in outstanding achievement (Ericsson, Charness, Feltovich, & Hoffman, 2006).

Alfred Binet (1909/1973), the inventor of the IQ test, had a strong growth mind-set. He believed that education could transform the basic capacity to learn. Far from intending to measure fixed intelligence, he meant his test to be a tool for identifying students who were not profiting from the public school curriculum so that other courses of study could be devised to foster their intellectual growth.

The Two Faces of Effort

The fixed and growth mind-sets create two different psychological worlds. In the fixed mind-set, students care first and foremost about how they'll be judged: smart or not smart. Repeatedly, students with this mind-set reject opportunities to learn if they might make mistakes (Hong, Chiu, Dweck, Lin, & Wan, 1999; Mueller & Dweck, 1998). When they do make mistakes or reveal deficiencies, rather than correct them, they try to hide them (Nussbaum & Dweck, 2007).

They are also afraid of effort because effort makes them feel dumb. They believe that if you have the ability, you shouldn't need effort (Blackwell, Trzesniewski, & Dweck, 2007), that ability should bring success all by itself. This is one of the worst beliefs that students can hold. It can cause many bright students to stop working in school when the curriculum becomes challenging.

Finally, students in the fixed mind-set don't recover well from setbacks. When they hit a setback in school, they *decrease* their efforts and consider cheating (Blackwell et al., 2007). The idea of fixed intelligence does not offer them viable ways to improve.

Let's get inside the head of a student with a fixed mind-set as he sits in his classroom, confronted with algebra for the first time. Up until then, he has breezed through math. Even when he barely paid attention in class and skimped on his homework, he always got *A*s. But this is different. It's hard. The student feels anxious and thinks, “What if I'm not as good at math as I thought? What if other kids understand it and I don't?” At some level, he realizes that he has two choices: try hard, or turn off. His interest in math begins to wane, and his attention wanders. He tells himself, “Who cares about this stuff? It's for nerds. I could do it if I wanted to, but it's so boring. You don't see CEOs and sports stars solving for *x* and *y*.”

By contrast, in the growth mind-set, students care about learning. When they make a mistake or exhibit a deficiency, they correct it (Blackwell et al., 2007; Nussbaum & Dweck, 2007). For them, effort is a *positive* thing: It ignites their intelligence and causes it to grow. In the face of failure, these students escalate their efforts and look for new learning strategies.

Let's look at another student—one who has a growth mind-set—having her first encounter with algebra. She finds it new, hard, and confusing, unlike anything else she has ever learned. But she's determined to understand it. She listens to everything the teacher says, asks the teacher

questions after class, and takes her textbook home and reads the chapter over twice. As she begins to get it, she feels exhilarated. A new world of math opens up for her.

It is not surprising, then, that when we have followed students over challenging school transitions or courses, we find that those with growth mind-sets outperform their classmates with fixed mind-sets—even when they entered with equal skills and knowledge. A growth mind-set fosters the growth of ability over time (Blackwell et al., 2007; Mangels, Butterfield, Lamb, Good, & Dweck, 2006; see also Grant & Dweck, 2003).

The Effects of Praise

Many educators have hoped to maximize students' confidence in their abilities, their enjoyment of learning, and their ability to thrive in school by praising their intelligence. We've studied the effects of this kind of praise in children as young as 4 years old and as old as adolescence, in students in inner-city and rural settings, and in students of different ethnicities—and we've consistently found the same thing (Cimpian, Arce, Markman, & Dweck, 2007; Kamins & Dweck, 1999; Mueller & Dweck, 1998): Praising students' intelligence gives them a short burst of pride, followed by a long string of negative consequences.

In many of our studies (see Mueller & Dweck, 1998), 5th grade students worked on a task, and after the first set of problems, the teacher praised some of them for their intelligence ("You must be smart at these problems") and others for their effort ("You must have worked hard at these problems"). We then assessed the students' mind-sets. In one study, we asked students to agree or disagree with mind-set statements, such as, "Your intelligence is something basic about you that you can't really change." Students praised for intelligence agreed with statements like these more than students praised for effort did. In another study, we asked students to define intelligence. Students praised for intelligence made significantly more references to innate, fixed capacity, whereas the students praised for effort made more references to skills, knowledge, and areas they could change through effort and learning. Thus, we found that praise for intelligence tended to put students in a fixed mind-set (intelligence is fixed, and you have it), whereas praise for effort tended to put them in a growth mind-set (you're developing these skills because you're working hard).

We then offered students a chance to work on either a challenging task that they could learn from or an easy one that ensured error-free performance. Most of those praised for intelligence wanted the easy task, whereas most of those praised for effort wanted the challenging task and the opportunity to learn.

Next, the students worked on some challenging problems. As a group, students who had been praised for their intelligence *lost* their confidence in their ability and their enjoyment of the task as soon as they began to struggle with the problem. If success meant they were smart, then struggling meant they were not. The whole point of intelligence praise is to boost confidence and motivation, but both were gone in a flash. Only the effort-praised kids remained, on the whole, confident and eager.

When the problems were made somewhat easier again, students praised for intelligence did poorly, having lost their confidence and motivation. As a group, they did worse than they had done initially on these same types of problems. The students praised for effort showed excellent performance and continued to improve.

Finally, when asked to report their scores (anonymously), almost 40 percent of the intelligence-praised students lied. Apparently, their egos were so wrapped up in their performance that they couldn't admit mistakes. Only about 10 percent of the effort-praised students saw fit to falsify their results.

Praising students for their intelligence, then, hands them not motivation and resilience but a fixed mind-set with all its vulnerability. In contrast, effort or "process" praise (praise for engagement, perseverance, strategies, improvement, and the like) fosters hardy motivation. It tells students what they've done to be successful and what they need to do to be successful again in the future. Process praise sounds like this:

- You really studied for your English test, and your improvement shows it. You read the material over several times, outlined it, and tested yourself on it. That really worked!
- I like the way you tried all kinds of strategies on that math problem until you finally got it.
- It was a long, hard assignment, but you stuck to it and got it done. You stayed at your desk, kept up your concentration, and kept working. That's great!
- I like that you took on that challenging project for your science class. It will take a lot of work—doing the research, designing the machine, buying the parts, and building it. You're going to learn a lot of great things.

What about a student who gets an *A* without trying? I would say, "All right, that was too easy for you. Let's do something more challenging that you can learn from." We don't want to make something done quickly and easily the basis for our admiration.

What about a student who works hard and *doesn't* do well? I would say, "I liked the effort you put in. Let's work together some more and figure out what you don't understand." Process praise keeps students focused, not on something called ability that they may or may not have and that magically creates success or failure, but on processes they can all engage in to learn.

Motivated to Learn

Finding that a growth mind-set creates motivation and resilience—and leads to higher achievement—we sought to develop an intervention that would teach this mind-set to students. We decided to aim our intervention at students who were making the transition to 7th grade because this is a time of great vulnerability. School often gets more difficult in 7th grade, grading becomes more stringent, and the environment becomes more impersonal. Many students take stock of themselves and their intellectual abilities at this time and decide whether they want to be involved with school. Not surprisingly, it is often a time of disengagement and plunging achievement.

We performed our intervention in a New York City junior high school in which many students were struggling with the transition and were showing plummeting grades. If students learned a growth mind-set, we reasoned, they might be able to meet this challenge with increased, rather than decreased, effort. We therefore developed an eight-session workshop in which both the control group and the growth-mind-set group learned study skills, time management techniques, and memory strategies (Blackwell et al., 2007). However, in the growth-mind-set intervention, students also learned about their brains and what they could do to make their intelligence grow.

They learned that the brain is like a muscle—the more they exercise it, the stronger it becomes. They learned that every time they try hard and learn something new, their brain forms new connections that, over time, make them smarter. They learned that intellectual development is not the natural unfolding of intelligence, but rather the formation of new connections brought about through effort and learning.

Students were riveted by this information. The idea that their intellectual growth was largely in their hands fascinated them. In fact, even the most disruptive students suddenly sat still and took notice, with the most unruly boy of the lot looking up at us and saying, “You mean I don't have to be dumb?”

Indeed, the growth-mind-set message appeared to unleash students' motivation. Although both groups had experienced a steep decline in their math grades during their first months of junior high, those receiving the growth-mind-set intervention showed a significant rebound. Their math grades improved. Those in the control group, despite their excellent study skills intervention, continued their decline.

What's more, the teachers—who were unaware that the intervention workshops differed—singled out three times as many students in the growth-mindset intervention as showing marked changes in motivation. These students had a heightened desire to work hard and learn. One striking example was the boy who thought he was dumb. Before this experience, he had never put in any extra effort and often didn't turn his homework in on time. As a result of the training, he worked for hours one evening to finish an assignment early so that his teacher could review it and give him a chance to revise it. He earned a *B*+ on the assignment (he had been getting *C*s and lower previously).

Other researchers have obtained similar findings with a growth-mind-set intervention. Working with junior high school students, Good, Aronson, and Inzlicht (2003) found an increase in math and English achievement test scores; working with college students, Aronson, Fried, and Good (2002) found an increase in students' valuing of academics, their enjoyment of schoolwork, and their grade point averages.

To facilitate delivery of the growth-mind-set workshop to students, we developed an interactive computer-based version of the intervention called *Brainology*. Students work through six modules, learning about the brain, visiting virtual brain labs, doing virtual brain experiments, seeing how the brain changes with learning, and learning how they can make their brains work better and grow smarter.

We tested our initial version in 20 New York City schools, with encouraging results. Almost all students (anonymously polled) reported changes in their study habits and motivation to learn resulting directly from their learning of the growth mind-set. One student noted that as a result of the animation she had seen about the brain, she could actually "picture the neurons growing bigger as they make more connections." One student referred to the value of effort: "If you do not give up and you keep studying, you can find your way through."

Adolescents often see school as a place where they perform for teachers who then judge them. The growth mind-set changes that perspective and makes school a place where students vigorously engage in learning for their own benefit.

Going Forward

Our research shows that educators cannot hand students confidence on a silver platter by praising their intelligence. Instead, we can help them gain the tools they need to maintain their confidence in learning by keeping them focused on the *process* of achievement.

Maybe we have produced a generation of students who are more dependent, fragile, and entitled than previous generations. If so, it's time for us to adopt a growth mind-set and learn from our mistakes. It's time to deliver interventions that will truly boost students' motivation, resilience, and learning.

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Carol S. Dweck is the Lewis and Virginia Eaton Professor of Psychology at Stanford University and the author of *Mindset: The New Psychology of Success* (Random House, 2006).