NevMATYC Newsletter

Volume 2 Issue 2 Fall 2018

A Note from the President

This newsletter is NevMATYC's third. Our first newsletter came out last spring, 2017, our second last fall, 2018, and it is our goal to get one out every semester.

Here is a list of things we are doing (or trying to do or should do).

The NevMATYC Logo

We now have a NevMATYC logo. Check it out above and on our webpage at www.nevmatyc.org

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In This Issue

Call For Articles

Many NevMATYC members will attend AMATYC's annual conference in Orlando this year. Please consider sending in an article about any sessions you attended that sparked your interest, any tips or tricks you picked up from other instructors, or any insight you gained that you feel might benefit all of us.

Not going to AMATYC? Maybe you attended another conference this year and could share with us about that.

Remember our recurring articles we are always looking for submissions for include: *Recommended Readings*, *The Most Amazing Student I Ever Had*, *Highlighting Hobbies*, and *Bad Math*.

Bad Math

By Ronnie Yates, CSN

Enjoy this Abbott and Costello skit about tricks with numbers!

https://www.youtube.com/watch?v=MS2aEfbEi7s

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The NevMATYC Constitution and By-Laws

NevMATYC has a Constitution and By-Laws. We have been following them rather loosely (I guess that is on me). We need to tighten this up, and I hope we can do so starting later this year. You can find the Constitution and By-Laws on our webpage.

NevMATYC Board Elections

The officers of NevMATYC are the President, Northern Vice-President, and the Southern Vice-President. Our By-Laws require that we have elections for Executive Board Officers in the spring of odd-numbered years. This means we must have an election this spring, 2019. Article V of the Constitution describes the duties of the officers. Jen Gorman, our Past-President, has agreed to run the election. Sometime near the middle to end of November, Jen will send out a call for candidates. Think about running for an officer position and serving our colleagues here in Nevada.

The NevMATYC Webpage

In our last newsletter, I noted that Jim Matovina of CSN had created a webpage for us and, through his generous contribution, had acquired the domain name nevmatyc.org for the next five years. I noted this in our last newsletter, but because we have some new faculty members, I will note it again.

The page is up and running, but is mostly just a shell waiting for us to decide what content to place on it. All of us can contribute to the page. Some things I noted in the last newsletter, and that we are still looking for are

Columns written by members in which we can express our views on various mathematical or education topics. We could have columns that

1. Keep us apprised of what other AMATYC affiliates are doing.
2. Provide us with information about such things as Pathways, or AMATYC's IMPACT, or AMATYC's Student Research League, and Open Source textbooks.
3. Keep us up-to-date with what the Nevada state government (or other states) are doing in terms of college mathematics requirements. Are you a political junkie who keep up with state politics? There is space for you on our webpage.
4. In which our members present interesting/challenging/fun mathematical problems to solve.
5. That are devoted to mathematical humor or mathematical art.
6. In which each of us as educators and mathematicians write about topics that we find interesting or topics on which we care currently working.
7. That present reviews of books or articles we find interesting and which to share.
8. In which we talk about things we are doing in our classrooms.
    a. Maybe you have tried something that you saw at a conference.
    b. Maybe you are trying to incorporate some new (or new to you) technology that you would like to talk about.
    c. Maybe you are trying something to increase retention.

What would you like to see as features on our website? If you have some ideas, please pass them on to one our Board members.

The NevMATYC Newsletter

To keep our newsletter going, we need news. Tell us what is going on at your campus or any news that you think would be of interest to our members. Lisa is always on the look-out for news. Send us photos. Is your college hiring? Did you read a book you think many of us would enjoy? Did you hear a good math joke? Share it with us. Let us know, and we will try to get it in the newsletter. Maybe there is a cartoonist among us. If you have an article that you would like to write that you think would be too long to appear in a newsletter, we could put a paragraph or two, then link the full article to our webpage.

How Students Succeed: From the Student Voice

Submitted by Dr. Gail Small, TMCC

I recently taught a fast-paced summer course and was surprised at the student success rate. I don't mean to sound skeptical, however a course normally taught over 15 weeks was jammed into a 5-week summer course. Even so, most of the approximately 30 students that stayed with the course, passed with a C or higher.

The course was Stat 152, a one-semester introductory course in statistics. As for the content, students performed most of the calculations on those wonderful TI 83/84 calculators. That left a lot of the course to the conceptual understanding of concepts, interpretation of statistical results, and understanding the vocabulary of the world of statistics.

So, I asked the students what they did to be successful in this fast-paced statistics course. I would like to share their thoughts with you. I have shared these same writings with my current students. I hope they take these fantastic pieces of advice from their fellow students.

My email to the A and B students:

> "Hello,
>
> I want to congratulate you on your excellent job in Stat 152 summer 2018 class. I wonder if you would let me know what behaviors you did that made you so successful in this course? I would like to pass your advice on achievement to other Stat students.
>
> Feel free to email me with what you did to be very successful in this course. I am also interested in your feedback on this online course.
>
> Sincerely,
> Dr. Gail Small"

Here are some of the student responses:

Thank you very much! I am so relieved and extremely happy to see that I received and A in statistics 152! I feel that I overcame and accomplished this class. This was a very challenging course due to the summer condensed session, as well as the amount of work required. I spent almost 90 hours on this course in the 5 weeks. I feel that completing all of the homework (until all attempts are 100%), quizzes and reviewing the homework before the final is what helped me become successful. I did watch you-tube videos on how to work my calculator when it seemed I did not have enough resources, and I also attended tutoring when absolutely necessary. I do feel that there is a lot of work required for this course in such a short time; however, it did seem that the work was all beneficial for successfully completing the final exam. Also, I am living proof that even while taking other classes, and working a full time job, an A in this class is extremely challenging, yet possible.

Thank you for your email, it was a very nice to receive and be recognized for the work I put into the Stat 152 course.

I would say the most vital part to success in this course and other courses I have taken since returning back to school and making sense of the material by understanding how it is used in real life, and not just memorizing formulas. For me, having those connections makes the material more interesting and easier to understand.

However, the biggest part for me with this course was understanding how to use my calculator (Ti-83+) for the material in this course. I watched lots of videos and referred to the technology section of each chapter to make sure I knew how to use calculator, because I knew that was going to be my main weapon on the final.

My general approach to the course was to read each chapter, not skim over but actually read and try and make sense of the book. Being an online course, there was not a personal interaction with a professor that is an expert in the field to make sense and give real life examples for concepts in class. So reading the book became a crucial part of not only doing well on the homework and quizzes, but being able to understand why I was learning what I was learning. Beyond reading the book, I would look up videos online if I could not completely grasp the concept. My wife also was a big help since she has a masters in economics and stats is kind of her thing!

Understanding the homework assignments was very important to my success as well. Making notes on each step of each problem really helped me on quizzes and studying for the final. I found with this course that a problem would seem fairly easy to approach when the material was fresh, but going back to problems that I had not reviewed for a little bit was hard to remember exactly how to attack the problems. So having a step-by-step guide was nice to help me study and reinforce concepts.

I also would go back through each chapter after taking the chapter quiz and create an outline for the entire chapter just to help me review and hopefully have the course material stick in my head.

For the final, I went over each review homework and created an outline for each of those assignments. After creating the outline and reviewing the review problems a few times each, I created my formula sheet based off of those outlines. It was really going over the review problems and homework assignments a couple times so each problem seemed relatively fresh in my mind for the final.

Hope that helps, and thank you for a fun course!

I have never gotten an email like this from an online instructor, and I know you are doing it for feedback, but I just want you to know that it really means so much to me to have my effort acknowledged by you! Thank you! I am about to start my second semester of nursing school at TMCC. I took Stats online in summer school in anticipation of enrolling at Boise State University after I complete the nursing program. It is transferable towards my BSN. I owe my success to reading the chapter using the eText and taking notes before starting the assignments. I also used Statshowto.com to learn the TI83. I would say I definitely worked in this class many more than 10 hours a week—whether researching on Youtube how to enter into the TI83 or just reading the eText. I also know that if I would have given myself another day or two to prepare for the final, I could have figured out the 4 questions I felt stumped on. I have had to "let this go" and am happy with my grade! I worked hard for this. Math has never been a strong subject for me, so if I can basically teach myself Stats and how to use a TI83 online at my kitchen table in 5 weeks and earn a solid B-, others can too! Thanks again, this class was great.

The course was tough for me because a lot of the concepts were abstract, and math is a difficult subject for me overall! What I did to prepare myself for the weekly quizzes and homework was that I read the whole chapter and made notes of the concepts that I found to be important to that chapter. After that, I practiced all of the odd-numbered problems that are found at the end of the chapter and checked my answers in the back of the book. I kept this routine throughout the course.

I thought this course was scheduled at a pace that was challenging, but not impossible to do. I enjoyed that you kept the class updated for the final, along with making the option of tutoring available. However, I would have felt a little more prepared having a study guide specific to the final because there were many formulas to keep track of. Stat 152 was a definite challenge, but I enjoyed learning some of the concepts I was presented with in the text and the structure of the class.

Thank you so much for the email. It was quite a surprise and very much appreciated. I am more than happy to share all that I did for this class.

I rented the textbook and read through each chapter and took notes. I found my notes from the chapter weren't always effective and at times more in-depth information than I needed to remember for the homework. While doing the homework, I used the "show me an example" button with all the problems I didn't know how to complete. I additionally wrote down these problems, so I could review them later to prepare for the quiz.

I began using StatCrunch for homework problems, but when I realized I couldn't use it on the final and even quizzes, I started using my calculator. Since I have a Casio calculator, I had to use Youtube quite a number of times to figure out how to complete problems using my specific calculator.

For the final, I reviewed all the homework reviews and wrote down any problems I really didn't remember or wanted to spend more time looking at during later review sessions. I also wrote down calculator procedures I had forgotten so I could retain them.

This was my first online class. I had used MyMathLab previously so was already comfortable completing homework and quizzes online. As mentioned previously, I made use of the examples of problems that were provided on MyStatLab. My only frustration with the examples provided in MyStatLab was the lack of completion of a problem when it simply stated to "use technology". Using the book and online program was ample information to complete the course except for help with calculator use since I own a Casio. I had found a page online at one point (in MyStatLab?) that provided videos on calculator use. Later on, I couldn't remember where I had found this page so found it easier to use Youtube. Although it took time finding exactly what I needed, for the most part (I think only one time I couldn't find what I needed), Youtube provided the information I was looking for.

I am self-motivated and performance driven. Additionally, this was the last prerequisite I needed to start grad school. All of these factors as well as the hours and hard work I put into this class, I believe contributed to my success.

Thank you so much for asking and please let me know if you have any additional questions. I would be happy to answer them.

In closing, I will say that Stat 152 is a less demanding course than the algebra-based courses, and that certainly helped with the student success. However, I know other of my students do not apply these rigorous study techniques, and it shows. Feel free to pass these study tips onto your students as well!

My Awesome Guitar

By Denny Burzynski, CSN

I know a guy, a retired computer engineer from Hewlett-Packard, who plays and builds guitars. His name is Peter Rosenbladt, he lives in the Silicon Valley and builds guitars in his cabin in Twain Harte in the California Sierras. Through this last winter, spring, and summer, he built a guitar for me. Peter has always built classical guitars, but he agreed to try building a Martin Dreadnought, D-28 style guitar for me. He finished the construction this August. The guitar is magnificent! It looks and sounds (way)^2 better than I can play it. The top is made of Sitka Spruce, the neck of mahogany, and the sides and back of Honduran Rosewood. The sustain is awesome, the hard Honduran Rosewood sounds like glass. I sent Peter a design for the rosette, and he found a shop in Santa Clara that could laser it into the spruce top. The innermost ring of the rosette displays a few digits of π; the middle ring, a few digits of the number e; and the outer ring, a few digits of the number f, the Golden Ratio. Now this awesome guitar sits next to my desk at home. It looks at me every day, and I think I hear it say, "pick me up, my friend; let's learn to play the O'Neill Brothers Group's version of Pachelbel's Cannon in D together."

Definition Obsession

Submitted by Michael Greenwich, CSN

I am obsessed with definitions. Imagine: to learn the length of one yard, you pay good money to an expert to teach you how long one yard is. He teaches you explanations like "it is about 90% of a meter" and examples like "it is three times the length of your foot." However, he does not give you a yardstick. Or, even worse, he gives you a stick shorter than a yard as a yardstick. Would you not be furious?

A physical object, like a yardstick, can be a definition of a physical concept, like the length of one yard. However, a definition of a mathematical concept is usually one English sentence.

A definition of *A* is a statement describing exactly what *A* is in a two-way implication.

For example, "a multiset is a set which allows repeated elements" is a definition of multisets. This definition means if something is a multiset, it is a set that allows repeated elements. Also, with the second implication, it means if something is a set which allows repeated elements, it is a multiset.

Generally, a definition of *A* can be used to determine whether something is or is not *A* by itself and also can be used to learn and understand something new. It is just like a yardstick which is used to determine whether a meter is the same as a yard or not and also to learn and understand something different or new like the length of one perch.

If only one thing were allowed for teaching a mathematical concept, it should be its definition. Even if many things are allowed to teach a mathematical concept, its definition should be one of them. Explanations and examples are nice, but they should be accompanied by a definition. No one should be expected to guess what something is from only explanations and examples in mathematics.

So, here are two problems with the current state of definitions in math education as I see it:

1. Definitions are mission for some important math concepts (no yardstick)
2. Inaccurate definitions commonly given to some important math concepts (short yardstick)

Some textbooks have no definitions for important mathematical concepts. For example, several textbooks have no definition of combinations. One of them, in its index, notes the definition is on a particular page, but that page provides only an example and some explanations. No definition. Why did the author not give a simple definition lie, "A combination is a multiset"? It is just one sentence.

If a student has understood what a multiset is, the student can understand what a combination is with the definition alone. Moreover, everything connected with combinations becomes obvious. For instance, crystal clear are that the order of objects in a combination would not make any difference and that a combination is a set if it is obtained by selecting objects from a larger set without replacement.

Again, explanations and examples are wonderful, especially for complex concepts and definitions, but they would not be as effective and definite in learning and understanding the concepts without their definitions. Many simple concepts need only their definitions, and students who have understood previous math concepts need only definitions for many concepts.

I see the same problem in statistics. Many statistics textbooks do not have definitions of important statistical concepts. For example, some textbooks have no definitions of p-value, and some instructors may not give definitions or explanations for it. So, many students start learning how to compute/find p-values without understanding or knowing exactly what p-values are. As a result, the process of computing/finding p-values turns into memorization. Then, unfortunate things may happen. For example, students forget it, are unable to use it under different situations, or make mistakes such as using a smaller probability to for p-value all the time. Sad!

My second pet peeve is that many textbooks give inaccurate definitions or something that is not a definition as a definition. For example, a relation is a set of assignment rules, each of which assigns one object to one or more objects. A common inaccurate definition is "a relation is a set of ordered pairs." This statement is equivalent to "if something is a relation, it is a set of ordered pairs." The contrapositive is "if something is not a set of ordered pairs, it is not a relation." Well, {a is assigned to 3, b is assigned to 5, c is assigned to 3} is not a set of ordered pairs, but it is a relation.

How about the following statement? "Anything that can be expressed by a set of ordered pairs is a relation." Unfortunately, this statement is false because not everything that can be expressed by a set of ordered pairs is a relation. For example, {a is paired with 3, b is paired with 5, c paired with 3} can be expressed as the set of ordered pairs { (a, 3), (b, 5), (c, 3) }. So, the statement is inaccurate and cannot be used as a definition of a relation.

An ordered pair, as notation, has no assignment of direction between objects. For example, (1, 2) does not assign 1 to 2 or 2 to 1 for the equation x + y = 1, while (1, 2) assigns 1 to 2 for the function f(x) = x + 1 only because (1, 2) is for a relation (a function is a relation). So, ordered pairs cannot be used to establish the assignment direction for relations. Usually, notations have no meaning until they are designated to denote certain things. Thus, notations should be avoided in definitions.

Another example of common inaccurate definitions is "a finite sequence is a function whose domain is a set of positive integers and the range is a set of terms." A function is a set of assignment rules, and a set has no order among its elements. A set of positive integers has no order among its positive integers. A sequence is a collection of ordered elements. Yet, this definition using a function establishes no order among any things. Without order, no sequence. By the way, can you fix this definition?

Here is another common inaccurate definition of sequences: "A sequence is a set of ordered elements." This definition determines "2, 3, 4, 3, 5 in this order" not to be a sequence because the repeated elements of 3. Ordered or not, a set cannot have repeated elements. So, I cringe and go into a deep depression when I see a statement like "data are a set of measurements..." in a statistics textbook. An accurate definition of data is "data are a multiset of measurements or observations," and an accurate definition of a sequence is "a sequence is a multiset of ordered elements."

By the way, a mathematical concept can have multiple correct definitions. For example, "a sequence is a collection of ordered objects" and "a sequence is a multiset of ordered objects." Any correct definition is fine. However, the more concise and clear, the better a definition is. Also, if the definition is to be used in other definitions, this definition should be introduced before those other definitions. For example, the definition of multiset should be introduced before the definition "a sequence is a multiset of ordered objects." The order of math topics is important.

At any rate, definitions are very powerful and useful for many purposes. In fact, they are unexpendable for understanding mathematical concepts, and they should be provided to students, like a yardstick.

Anyway, more about understanding in math learning in my next article. In the meantime, I thank Professor Burzynski for listening to my long rants about definitions and other mathematical topics. Also, thanks to NevMATYC for the opportunity to air and share my pervasive obsession about definitions with my Nevada colleagues.

Study Skills

Submitted by Lisa Trujillo, CSN

"Math anxiety" is a huge buzzword when we talk about two-year college students. It's one of those things that you can just randomly say in a department meeting, and it will always be met with nods of agreement, even when it has nothing to do with the subject at hand. And for good reason, right? We all see how students walk into the classroom already *knowing* they are bad at math. It could be that they haven't yet had a teacher inspire them to find math interesting, or they missed a few key concepts that seem minor at the time, but we know math takes every building block and puts it to use later on, no matter how small. Regardless where the root of the issue lies, math anxiety is a real hurdle that our students face. The much bigger issue, that has very little to do with math at all, is that our students are really struggling with figuring out how to study.

"Back in my day," when I got assigned homework, it was usually the odd problems, so I could check my answers in the back of the book. If I didn't get the answer in the back, I went back and had to find my own mistake. This 1) makes sure you don't make that same mistake again because you see how it impacted the entire problem and 2) reinforces your confidence in the steps you did correctly because you begin to be able to recognize which steps you could be sure of. In my experience, my students have very little patience for spending the time to investigate where the mistake happened. It

seems that they are so frustrated by not being able to "just be done with" the homework, that they are overlooking the fact that the homework is their opportunity to explore their understanding and skills.

I wish this was an article about how I have completely figured out how to get my students to become independent learners. In reality, it's a call for ideas. How do we get our students to do this self-discovery? How can we provide the foundation for students to build "good student" behaviors that they may not have known about before?

A group of colleagues and I are working on building a Study Skills module in Canvas to be assigned as the first task for students in an emporium-style Beginning Algebra course. Although we plan to use this for in-person classes also, we really started to see a trend in our online students that they were often finding themselves confused about what their next task is, no matter how many reminder emails we sent or explanatory documents we posted. Again, this starts as a study skills issue before the math anxiety even has a chance to kick in.

Some things we would like to address and possible solutions:

1. Teaching students how to tell what they have completed and what they need to do next
    a. While a syllabus is a necessity to outline course policies, the number of students who actually sit down and read through carefully can best be estimated as "unknown." We are thinking a video walk-through would be more effective than having them read a document about the course. We plan to provide screenshots of both Canvas and ALEKS so students will see exactly what to look for. *Any advice about how long videos should be? Should we put a quiz after each video so they are required to acknowledge the material the video covered?*
    b. We are creating a flowchart that shows exactly what their next task is when they finish an assignment or test. We will add due dates and a space for them to write which date they completed the item.
2. Students get to the exam review and the material looks unfamiliar all over again
    a. Our idea is that we can help them organize a notebook and somehow count that towards a portion of their grade. We want students to be able to recognize what type of problem they have come across and be able to find the notes they took on that topic. *Do you have any experience with student notebook organization?*
    b. Because they feel they are starting all over again with the exam review, we have seen a lot of students print out the worked-out solutions we have provided. The most frustrating thing a student can say to me when they are working on a review is "I don't see how you went from this step to the next." I never want a student to think the way I completed a problem on the answer key is the only way to solve it. They don't need to adapt the way they started the problem to match the answer key. In an effort to encourage students to always attempt the problem in their own way first, we are going to only allow students to view the worked-out solutions once they have uploaded a file of their own attempts.
3. Getting students to recognize that math is sequential
    a. Although we never want a student to feel absolutely defeated after a low test score, there is a difference between math and other subjects in this arena. All of those skills the student was not able to prove mastery of are going to come back up, whether it is on the next test or in his or her next course. In other subjects, a student might be able to get away with not fully understanding an entire chapter, but in math, that's not an option. There is no "moving on" from not grasping how to combine like terms. *Have you ever incentivized correcting mistakes on a past test? What is the proper balance between needing to continue on and needing to remediate?*
4. Promoting effective and appropriate communication
    a. In an effort to avoid the last-minute, panicked emails, we want to encourage students to start a conversation with us earlier. We often sit in office hours with no students in sight, so that means everyone understands everything, right? *How do you get a student to recognize the difference between necessary productive struggle and knowing that they should ask for help because they are missing a piece that is crucial to the problem?*

b. With the technology available to us and our students, there *shouldn't* be any ambiguity about what exactly a student needs help on. We want students to know how to send us an email so we can effectively address their issue. We will suggest that students send us a picture or screenshot of the problem they are working on, send us the topic name of what they are stuck on, and, most importantly, tell us something they do understand about the topic. It is hard to meet a student halfway to nowhere, so having a student be able to start a mathematical conversation with something we can work with would be amazing. *What is the best way a student can approach you with a question they have?*

Hopefully I can follow up in the next newsletter with an article about a one-size-fits-all solution to all of the issues our students face. Please let me know if you have any advice or interest in this topic. I'd even be willing to mention you in my Nobel Peace Prize acceptance speech.

Some Thoughts About Our Finite Mathematics Course

Submitted by Denny Burzynski, CSN

I taught my very first finite mathematics course in 1976. That's right, I said 1976. That is 42 years ago. Pre-calculator days. Finite mathematics is a course required of business majors in many (maybe most) 4-year schools. The topics I covered in that course were:

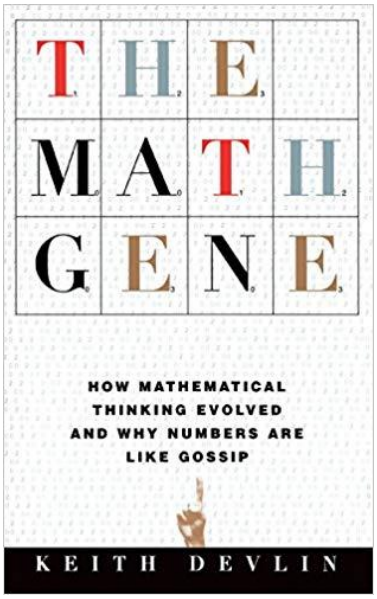
Solving Systems of Equations using Gauss-Jordan
Solving Systems of Equations using Matrices
Arithmetic Operations on Matrices
Linear Programming
The Simplex Method
Counting
Probability
Mathematics of Finance
Introduction to Statistics

I have taught this course nearly every year since those days when only pencil technology was available. I taught this course this last summer, 2018. The topics I covered in that course were:

Solving Systems of Equations using Gauss-Jordan
Solving Systems of Equations using Matrices
Arithmetic Operations on Matrices
Linear Programming
The Simplex Method
Counting
Probability
Mathematics of Finance
Introduction to Statistics

That's right. Again. The 2018 topics are the same as the 1976 topics. The exercises are nearly all the same. We have been doing the same thing for at least 42 years. What was considered and required as basic mathematical knowledge for a business degree has not changed in 4 decades? This makes me wonder if 4-year school business departments even know what topics are in this course. Maybe they do and all is good. Or, maybe this is one of those courses that has always been accepted as a prerequisite course and no one even looks at it anymore. Community college mathematics departments offer finite because community college business departments require it, and, in turn, community college business departments require finite because 4-year school business departments require it. This could be a good time for all of us to get together and talk about the topics students really need for a business degree.

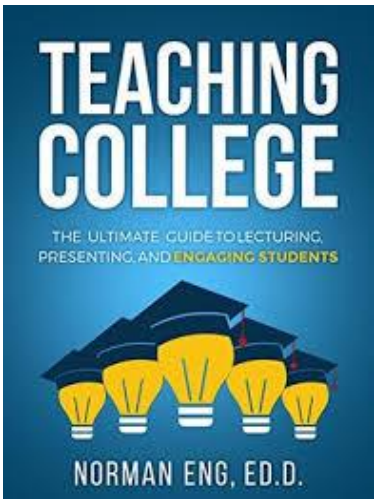
Recommended Readings



The Math Gene: How Mathematical Thinking Evolved and Why Numbers are Like Gossip

Recommended by Aaron Harris, CSN

"If people are endowed with a 'number instinct' similar to the 'language instinct'—as recent research suggests—then why can't everyone do math? In *The Math Gene*, mathematician and popular writer Keith Devlin attacks both sides of this question. The Math Gene explains how our innate pattern-making abilities allow us to perform mathematical reasoning. Revealing why some people loathe mathematics, others find it difficult, and a select few excel at the subject, Keith Devlin suggests ways in which we can all improve our mathematical skills. This is essential reading for anyone who is fascinated, infuriated or intimidated by mathematics."



Teaching College: The Ultimate Guide to Lecturing, Presenting, and Engaging Students

Recommended by Lisa Trujillo, CSN

Your students aren't reading. They aren't engaged in class. Getting them to talk is like pulling teeth. Whatever the situation, your reality is not meeting your expectations. Change is needed. But who's got the time?

Or maybe you're just starting out, and you want to get it right the first time.

If so, Teaching College: The Ultimate Guide to Lecturing, Presenting, and Engaging Students is the blueprint. Written for the **early career college professor**, this easy-to-implement college instruction guide teaches you to:

- Think like advertisers to understand your target audience—your students
- Adopt the active learning approach of the best K-12 teachers
- Write a syllabus that gets noticed and read
- Develop lessons that stimulate deep engagement
- Create slide presentations that students can digest
- Take charge of your college classroom management
- Get students to do the readings, participate more, and care about your course

Secrets like "focusing on students, not content" and building a "customer" profile of the class will change the way you teach. The author, Dr. Norman Eng, argues that much of these approaches and techniques have been effectively used in marketing and K-12 education, two industries that could greatly improve how college instructors teach.

Find out how to hack the world of **higher education instruction** and have your course become the standard by which all other courses will be measured against. Whether you are an adjunct, a lecturer, an assistant professor, or even a graduate assistant, **effective teaching** is within your grasp.