Background of Rik Littlefield, Math 101 Instructor

I am adjunct faculty in the Mathematics Department here at WSU-TC. Being "adjunct" means that I teach part time for the University, but I spend most of my time somewhere else doing other things. Most of those other things involve mathematics too.

I have two university degrees: a Bachelor of Science degree in Mathematics from 1974, and a Master's degree in Computer Science from 1988 — 14 years later.

From 1980 through 2008, I did applied research at PNNL — the Pacific Northwest National Laboratory. Most of that time, I was what the lab calls a "senior research scientist", leading small teams of people to develop first-of-a-kind computer systems. My specialty has always been not specializing. I've spent my life working on the boundaries between computer science, mathematics, and applications. As a result, I have a bizarre variety of publications: data analysis and visualization, non-destructive testing of welded pipe, medical imaging in a war zone, video analysis, computational chemistry, intelligence analysis, digital photography, and the taxonomy and anatomy of yucca moths. For a while, about 15 years ago, I was leader of the Applied Mathematics group at the lab, but I gave that up when we hired a young woman who was both a better mathematician and a lot more energetic and personable than I was.

Since leaving PNNL, I split my time between teaching, writing/selling/supporting a highly specialized piece of software for digital photography, and managing a website dedicated to the photography of tiny things, clear down where the wavelength of light turns out to be a big limitation. All of those activities take a lot of math.

It's probably clear that I make my living using math. What may not be so clear, but is also true, is that I use math on a daily basis to solve other problems I care about. How should I invest? What should I buy? Which tasks should I do myself, and which ones should I hire out? Lots of math, for lots of purposes.

So why am I telling you this, you ask?

It's for context and credibility.

At various times in this course, I'm going to tell you things about mathematics that you've probably never heard before. I'll tell you that a few core concepts are Really Important, and a lot of details are not. I'll offer the opinion that a lot of the math you were taught in high school was a waste of time, but I will also complain that some of the Really Important stuff got left out. When I do that, it's important that you understand where I'm coming from. I'm here to help you learn Math That Matters. This is math that you can use not just to pass this course, and not just to pass the next course — which you really do need to graduate — but math that you can use for the rest of your life on a weekly basis, maybe even daily.

Now at this point, watching your faces, I can see the wheels turning. (I've been here before, I know how this works!)

Some of the wheels are saying "Oh bleep! The last math class I took was three years ago, I did not understand it then, I have forgotten most of it anyway, and here I am stuck in a course taught by a professional mathematician. It's panic time!"

Please, relax. As you've heard in the syllabus, this course will be different from most math courses that you've probably had in the past. My intention is to help you learn Math That Matters. Will you have to work? Absolutely. Will you have to learn new concepts? I certainly hope so. Will you have to quickly regurgitate tiny snippets of predigested fact, and be made to feel inadequate when you cannot? Nope, that is **not** part of the game plan.

Again, I have to tell you something of my background. Part of the "applied research" business is that most of the time the researchers are confused. I used to joke that I got paid to be confused. It was never quite true. Actually I got paid to become unconfused, but the way that worked was that as soon as I became unconfused, I wrote up the explanation or programmed the solution, and the folks who paid my salary said "Gosh, this is great, Rik! Thanks so much, and by the way, here's your next problem to be confused about." It's a bit of a strange life, but it worked out well for me.

At any rate, the point for you folks is that I have a great deal of experience with what it feels like to be confused and uncertain. Over the years, I have also developed a collection of strategies for dealing with that situation – feeling confused and uncertain – and at various times during the course I'll be happy to share those with you also.