Culminating a year of visiting schools around Virginia and talking to teachers about their success in recruiting nontraditional students, I made a trip to Carroll County and had a chance to talk to some great nontraditional students there. The lesson learned is that these students are no longer worried about the gender implications of the courses they take. They are focused on long-term goals for a successful career and not concerned about who might have been following their chosen career paths in the past.

**Practical Nursing: Guys Can Do This Too**

Is nursing really a good option for guys? Logan Jones, senior nursing student at Carroll County High School, says, "Absolutely." He's the only male student in his class, and while that might be an issue for some guys, it doesn't bother Logan because he knows this is the path to a solid career.

> There’s not a whole lot of being bullied or anything like that. I’ll get the occasional joke, but I just brush it off like it’s nothing. I think a lot of people understand now that if you’re going into this kind of work, it’s great money and you have great job security. It’s a lot better than a lot of other jobs out there, and I just ignore any comments about it.

**Logan Jones and nursing instructor Debbie Johnson**

Although there are still relatively few male students in CTE practical nursing programs, the number of male nurses in college programs is steadily growing. More and more men are beginning to see the potential in high-
paying, secure jobs in health care and are taking up nursing. In fact, the number of men graduating from Virginia's RN programs has gone up by 400% since 1981. In the 1981-82 school year, only 67 men in the entire state of Virginia earned degrees to become registered nurses. Last year we had almost 300 male graduates.

Debbie Johnson, RN, who runs the Carroll County program, agrees that the "female-only" tradition in nursing is changing. "I think it's going to change as we see more men enter the field." She has been working on some subtle changes of her own to recruit more guys into her program.

One thing that we started doing to recruit more guys was a simple thing. I surveyed my class and asked what one thing I can do to make them feel more comfortable in the class and they said to let them wear something other than whites scrubs. So we went to school colors, navy. Now they can wear solid navy scrubs and black tennis shoes, and that made the guys more comfortable.

It's a simple fix that allows guys to feel like they blend in more easily and don't stick out in the rest of their classes.

Although Logan's mother is a nurse, he didn't always plan a career in health care. He started out aiming for a career in engineering, but in the end that didn't seem rewarding enough.

I've always been the kind of person who was really good with my hands, building things, designing things, ever since I was young, playing with Legos, you know. But it wasn't something that I knew I could dedicate all of my time towards; it wasn't something that I was that passionate about after I got older. Seeing doctors and nurses and people who help people motivated me to want to do this.

Logan saw plenty of doctors and nurses last year when he was diagnosed with an aneurism.

I was shuffled around for about a month to several different hospitals. This was actually right before I decided what CTE program I wanted to do. I saw the kind of care that was given. I had some care that was sub-par, but I had some care that was professional, and many people who were great, and it definitely helped me. That experience played a big part in my decision to study nursing.

The Carroll County practical nursing program begins in the junior year of high school when students take a course on becoming a nursing aid. Then in their senior year, students are able to start the practical nursing course. Because Carroll County is a comprehensive high school, they can be more flexible about arranging schedules so that students can fit demanding CTE classes, like this one, into their academic schedules. As Logan says, "Over the last two years the school has gotten a lot better at moving the schedules around. Last year I wasn't able to fit my classes the way I wanted them, but this year they worked with me. And this class is great in the sense that you get two blocks, and we really do need two blocks."

After completing the first year of practical nursing at Carroll County High School, students can continue straight into the articulated program at Wytheville Community College and complete their LPN in one more year. After becoming LPNs, students can go to work, continue on at WCC to become an RN, transfer to a university for a Bachelor's of Science in nursing, or perhaps move into another allied health program. Overall, the nursing program at Carroll County is an excellent option for students hoping to get a head start in careers in health and medical science.

As the program grows and acquires more students, Debbie Johnson is hopeful that she will have more motivated students like Logan. We asked Logan what advice he would give sophomore males who were thinking about getting into practical nursing:

Don't be scared of the idea that 'I'm the only guy in nursing' because you really shouldn't. It's a lot of fun. I know that the people I've been here with; we've grown together as a family. We're all really close, and no one really gives you too much grief about it. You hear the occasional joke, but I don't
really get too many problems with it. As long as you're serious about it and you're going into it with the right reasons, I think you'll be fine.

Agriscience in Carroll County Gives Women A Pathway to STEM Careers

Traditionally, not many teenage girls elected to study agriculture, but the agriculture department at Carroll County High School is growing thanks, in part, to seniors Ashley Light and Devon Lineberry-Jennings. Both young women were drawn to this subject for different reasons, but now both are certain that they want to make careers in agricultural science and plan on pursuing degrees from Virginia Tech.

Agriscience Students Ashley Light and Devon Lineberry-Jennings

Ashley began taking agricultural science classes in the 10th grade because she grew up on a farm, and farming was the way life she had always known:

I decided that I want my career to be in agriculture too because I can’t really get away from it; it’s just what I’ve always known. I decided to do food science and technology and go into food safety, so that I can help, because I know how that works on our farm. What we learn in class is like a head start for what I want to do in the future.

Devon had a less direct path into agriculture. Both her parents are writers, so her first exposure to agricultural science was the horticulture class she took on a whim in the 9th grade because she enjoys trying new things:

I became interested in plant sciences, and I was amazed at how many teenagers don’t keep a garden. You would think being around here people would know about agriculture, but so many people don’t know where their food comes from. Everyone expected me to follow my parents with writing, but I want to become a horticulture teacher.

Ashley and Devon are both extremely high achieving students and fairly confident they’ll be accepted to the university of their choice. Both have chosen to take CTE courses along with their AP courses and will receive advanced diplomas this May. Fortunately, Carroll County High is a comprehensive high school, where CTE and academic programs are all housed in the same building. This makes it easy for high achieving students, like Ashley and Devon, to combine their academic and technical studies, a pattern that is now the norm, not the exception, in their school.

Randy Webb, one of the agriculture instructors at Carroll County, says "I think we're attracting more of the academic students than we were ten years ago. We’re migrating towards a more science and technology based education, especially with STEM being a focal point for national education now; and agriculture is a perfect fit." In Carroll County, over 55 percent of the students who take CTE courses graduate with an advanced diploma. "Ten years ago, you would have probably been looking at about 20 percent."
According to Ashley and Devon, being in CTE doesn't take time away from their other academic subjects, but supplements them instead. "And it's not just the biology" that CTE helps them excel in, Ashley says.

Because in our school if you're in Agriculture, you're in FFA too, and if you try to participate, you get so much out of it. I've done public speaking, parliamentary procedure, different contests where you are graded on your verbal presentation as well as how grammatically correct you are and how good of a writer you are. So it's really directly related to our other courses.

Agriculture students at Carroll County benefit not only from their coursework, but from the practical, hands-on experience they get working on the school farm. The farm serves as fertile ground for students to grow their own crops, but also as a means to get more involved in the community. The school's land lab hosts groups like the Cattlemen's Association and the Virginia Agriculture Council. Students are able to sell what they grow on the farm at Food City, one of the largest food chains in southwest Virginia, Kentucky, and Tennessee. "The community really appreciates that," says Devon "They know these kids have grown this."

The school's visibility in the community has been an asset to the agriculture program, according to Randy Webb. "Especially with our land lab, or even getting our students to take trips to national events. We have a lot of companies, Southern State, farm supply companies, farmers, farm bureaus, Carroll County Vet Clinic; all these businesses come and ask 'how can we help you.' Whether they're doing that with materials or financially, we have got such a positive inflow from the community, that I think it's also helping our program grow."

Although CTE's Agriscience program is nontraditional for females, that's not an issue for Ashley or Devon. Ashley says,

"On our farm we have four kids, and three of us are girls, so there's not anything on the farm that we have not been exposed to or done. The whole 'farming is just for men thing' ... I don't think so, because I do it everyday."

Unlike Ashley, Devon had a little bit of pushback from her family on her choice to study agriculture:

My parents are really for it, but a lot of older people, like my grandparents, didn't want me to go into it because they told me it's a man's job. But my grandpa is more accepting now. I told him I'm not out there with heavy equipment; I'm thinking about teaching and working in the lab, not really out in the fields. And he kind of realized times have changed and women can do more things.

Both Ashley and Devon are comfortable with their choice of a nontraditional CTE program, and once they begin their university studies, they will discover they have lots of peers. In 2010, over 60 percent Virginia's higher degrees in agricultural sciences were earned by women.

Too Few College Students Reach Graduation

Graduation rates at two and four-year colleges around the country are startlingly low, according to a new report by Complete College America. The report, *Time is the Enemy*, presents an urgent message: There is no time to waste. The authors find overall that students are taking far too much time to complete their degrees, and that too few people who enroll in postsecondary certificate, two-year, and four-year degree programs actually ever make it through to graduation. As more CTE students go on to higher education, it becomes more important for CTE professionals to understand the challenges they will face.

It has been known for a long time that postsecondary graduation rates are low. I wrote about this back in August, reporting graduation rate data from the State Council for Higher Education in Virginia. However, *Time is the Enemy* brings something new to the conversation because it looks at all college students. Acr-
cording to the report, previously available data on this subject included only first-time, full-time college students because this is all that the federal government requires public colleges to report: "The federal Integrated Postsecondary Education Data System (IPEDS) doesn’t count what happens to part-time students, who make up about 40 percent of all students, nor does it count the success of transfer, low-income, or remedial students" (page 7). In order to give better, more detailed, information on graduation rates, Complete College America recruited 33 states, including Virginia, to submit detailed data on all of the students enrolling in public two- and four-year colleges.

The graphic below, taken from *Time is the Enemy*, shows how low postsecondary cohort graduation rates are in Virginia, a characteristic we share with most other states. Percentages calculated from that graph show:

- 26 percent of full-time public 4-year college students graduated in 4 years;
- 1 percent of full-time 2-year college students graduated in 2 years; and
- 1 percent of part-time 2-year college students graduate in 4 years.

These contrast starkly with the high school cohort graduation rates now published annually by VDOE. For the cohort of students entering ninth grade in 2007-2008, 87 percent graduated on time in 2011.

Graduation Rates at Virginia's Public Colleges

**Who Graduates and Who Doesn’t**

The report details a number of the characteristics that distinguish the students who graduate from those who do not. For example, Virginia students are less likely to complete a bachelor’s degree if they:

- Enroll after age 25 (29 percent of full-timers complete in 8 years)
• Participate in remedial programs (44 percent of full-timers complete in 8 years)
• Receive Pell grants (59 percent of full-timers complete in 8 years)
• Are Hispanic (71 percent of full-timers complete in 8 years)
• Are African American (54 percent of full-timers complete an associate’s in 4 years)

All students who fall into these categories have even lower graduation rates if they attend part time. Over all, only 29 percent of part-time students seeking a bachelor's degree manage to graduate within 8 years.

Unfortunately, completion rates are even worse for both full-time and part-time students who study for an associate’s degree or a 1-year certificate:

• Twenty percent of full-time and 9 percent of part-time students earn an associate’s degree in four years.
• Five percent of full-time and 1 percent of part-time students earn a certificate within two years.

Why Are Graduation Rates So Low

The report pinpoints a number of reasons why graduation rates are too low.

It is difficult to be a part-time student. Colleges schedules do not coordinate easily with work. This leads many part-time students to drop out and can make life difficult for the full-time students who have to work as well. After one year of school, part time students in both two-year and four-year colleges are significantly less likely than full-time students to return to campus. Time is the Enemy finds that after the first year at a Virginia two-year college, only 38 percent of part-time and 57 percent of full-time students come back for their second year.

Students are wasting time on excess credits. Many students end up taking many more courses than they need for graduation, perhaps because they are exploring options or because the sequences needed for graduation aren’t clear or the courses they need aren't available. This can be dangerous because the longer students stay in school, the more likely they are to drop out without the qualifications they need.

Remediation programs are rarely successful. Students who enter remedial programs are half as likely as others to graduate. These programs don’t seem to be successful in moving students forward.

In order to address these problems, Time is the Enemy makes a number of specific recommendations for reforming college programs. Many of these reforms resemble those that have been a part of secondary education for years. These include: using block schedules, simplifying the registration process, mainstreaming remedial students, and requiring formal, on-time completion plans for every student.

The Lessons for CTE

Although the report highlights low graduation rates, it is not intended to discourage students from going on to college. By understanding the challenges to graduation, it should be possible to help students be better prepared and thus more likely to succeed.

Three quarters of Virginia CTE completers now go on to college in the year after high school. Most of those students attend full time and are about equally divided between community and four-year college. About 15 percent are part-time students who can expect to face the most significant challenges in reaching graduation.

Too many students, especially part-time students, enter college without a good sense of how they're going to juggle time, finances, part-time work, and school coursework. Students need to be aware of these issues and start preparing before they begin to struggle in school and then drop out. The stakes are too high to leave this kind of thinking for later. Before college starts, students and parents should consider:

• how they’re going to afford college. If paying for college requires the student to work part-time,
try to plan for commuting to and from work and to class.

• **how to juggle work and school.** Schedule classes wisely so that students can both make it to work and to school on time.

• **how to handle course scheduling.** Take classes that count towards the degree you're trying to earn. Many students are taking too many classes that don't count towards their degree, which increases the amount of time it takes to graduate.

• **how to finish your degree on time.** Although going part-time will inevitably increase the time it takes to graduate, have a plan for how you're going to finish your degree in a certain amount of time. Students who take too long, usually don't finish at all.

Helping students plan for these kinds of challenges will give them the best chance of finishing college with diploma in hand.

**Yes Virginia — Another Great Data Source**

I've had a number of posts lately on data sources, how to find employment projections, state and county labor market profiles, and employer partners. Well, here's another: [YesVirginia.org](http://YesVirginia.org). YesVirginia is powered by the Virginia Economic Development Partnership and is an excellent source of information about market, economic, and demographic information in Virginia.

Although YesVirginia is geared towards business owners in Virginia, don't underestimate its usefulness! A reader recently got in touch to say that she frequently uses this site to power her research for CTE programs and notes that their data is easy to present to both students and faculty. She writes, this is an "an excellent tool that I use all of the time for research. The site breaks down many avenues of business including business sectors and community profiles. I use the community profiles to find business members for our CTE board. Their information is always timely and the statistical data is easy to interpret for students and faculty. Hope this helps."

Here are some resources you can reach from the navigation bar that runs across the top of each page:

• **Community Profiles for every city and county in Virginia.** Each community profile includes an array of information on your county such as: population, demographic distributions, labor force participation, unemployment, educational attainment, major industries and employment by occupation. The community profiles will also give you a list of the largest employers in your county or city and the estimated employment of those organizations.

• **Business Sector Profiles for 12 burgeoning industries.** Each profile includes information on major employers in that industry, a breakdown of the major fields in each industry by state, the education and training necessary for employment in the industry, and a map of where employers in that industry are concentrated.

• **Occupational Statistics including employment numbers and wages.** These appear under the Resource Center tab on the homepage. For each occupation, you have a choice of which statistics to view, such as number of people employed in that occupation in Virginia (by area), mean annual and hourly salaries overall, entry level mean salaries, and the salaries of experienced employees in that occupation. These statistics are generated by the Virginia Employment Commission and also available on their Virginia Workforce Connection website.

As with all of the data sources we've posted, if you run into any trouble finding labor market data or employment projects in your area, feel free to contact me for help: [Achsah Carrier](tel:(434) 982-5582). The people who run YesVirginia.org also list contact numbers for their experts and have a [Contact page](#) where you can send them your questions. Happy data hunting!
Education Requirements for Career Clusters

When planning CTE programs and when talking to students about their plans for the future, it's important to have a good understanding of the educational requirements for careers. New data from the Bureau of Labor Statistics (BLS) gives us great new information about this. I have put together the BLS findings with additional information about Virginia employment and wages in a handy document, Education Requirements for Career Clusters.

For each of more than 500 careers, the (BLS) now reports:

- The typical education level needed for an entry level job—
  - Doctoral or professional degree;
  - Master's degree;
  - Bachelor's degree;
  - Associate's degree;
  - Postsecondary non-degree award;
  - Some college, no degree;
  - High school diploma or equivalent;
  - Less than high school.

- How much work experience in a related job is needed for entry—
  - More than 5 years;
  - 1-5 years;
  - Less than 1 year; or
  - None.

- The typical on-the-job training needed to attain competency in the occupation—
  - Formal internship/residency (such as is required for doctors or teachers);
  - Apprenticeship;
  - Long-term on-the-job training;
  - Moderate-term on-the-job training;
  - Short-term on-the-job training; or
  - None.

To match occupations to career clusters, I used a system based on one created by The Center for Education and the Workforce as part of research they did to create employment projections for clusters. This research was carried out in conjunction with the National Research Center for Career and Technical Education and the National Association of State Directors of Career and Technical Education Consortium. Their final report, Career Clusters, was released last month, and I will be reporting on it more detail next month.

In order to make this information more useful to CTE professionals, I have combined it with information on the number of people employed in each job in Virginia and their median wages. I also grouped all of the occupations covered by the BLS into career clusters, so it will be easier to match them to CTE programs. For the sake of simplicity, each occupation only appears in one career cluster. This may be misleading in the case of some occupations, but it does give a general picture of the nature of career clusters.

For example, it shows us that most of the jobs in the Agriculture, Food, and Natural Resources Cluster require a high school diploma or in some cases less. But the majority of these jobs also require moderate-to long-term on-the-job training, and many also require related work experience. This suggests that it is particularly important to provide CTE agriculture students with cooperative education, internships, and similar experiences with employer partners. Employers seem to value this kind of hands-on, on the ground experience more than formal education.

By matching education and wage data, we can also see that there is not a simple, correlation between educational attainment and earnings. As a rule, workers with a bachelor's degree earn more than those without — but not always. Recreation workers, radio announcers, reporters, athletic trainers, and probation officers, who need bachelor's degrees, have lower median wages than mechanical engineering technicians, respiratory therapists, electrical and electronics drafters, and sonographers, who can start work with an associate's degree. Notice that the distinguishing characteristic here is STEM. Workers with scientific and engineering training can usually earn more with less education than those without.