

# Applied Baccalaureate Degree Pathways: Emerging Opportunities in Technician Education in STEM Fields

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<b>College Completion Essentials, with a STEM Twist!</b>	<p>National calls for raising college completion levels abound</p> <ul style="list-style-type: none"><li>▪ “We seek to help an additional five million Americans earn degrees and certificates in the next decade” (Obama, 2009).</li><li>▪ The Lumina Foundation (2010) Big Goal ~ raise the proportion of the American adult population that holds a college degree or credential from the current 37.9% to 60% by 2025.</li></ul> <p>Demand for expertise and training in STEM fields is particularly strong</p> <ul style="list-style-type: none"><li>▪ In 2008, 92% of STEM employees had some postsecondary education, with 71% having at least a bachelor’s degree. These educational attainment requirements are projected to remain steady through 2018 as STEM occupations continue to grow and expand (Carnevale et al., 2008).</li></ul> <p>Requires new ways of thinking</p> <ul style="list-style-type: none"><li>▪ The demands of the current market cannot be met by focusing solely traditional college-going student populations in traditional pathways.</li><li>▪ Must consider more inclusive approaches, with a variety of degree pathways.</li></ul>
<b>What is an Applied Baccalaureate Degree?</b>	<p>An applied baccalaureate degree is “a bachelor’s degree designed to incorporate applied associate courses and degrees once considered as ‘terminal’ or non-baccalaureate level while providing students with the higher-order thinking skills and advanced technical knowledge and skills so desired in today’s job market” (Townsend, Bragg, &amp; Ruud, 2008, p. iv).</p> <p>Key characteristics of applied baccalaureate degrees include:</p> <ul style="list-style-type: none"><li>▪ Incorporating applied learning, courses, and degrees</li><li>▪ Technical associate credits and degrees (e.g., AAS) once considered ‘terminal’ now transferred for credit toward a baccalaureate degree</li><li>▪ High-quality degrees and credentials</li><li>▪ Sometimes, but not always, designated by applied credentials such as:<ul style="list-style-type: none"><li>– Bachelor of Applied Arts (BAA)</li><li>– Bachelor of Applied Arts and Sciences (BAAS)</li><li>– Bachelor of Applied Science (BAS)</li><li>– Bachelor of Applied Technology (BAT)</li><li>– Bachelor of Technology (BT)</li></ul></li><li>▪ Often designed for returning adult workers and other underserved student populations who seek to further their education credentials</li><li>▪ Provide new opportunities for educational advancement, where they may not have previously existed</li></ul>

**About  
OCCRL’s  
Research**

**The Adult Learner and The Applied Baccalaureate (2007 – 2011)**

*Funded by the Lumina Foundation*

This project documented educational opportunities and policy-oriented initiatives associated with applied baccalaureate degrees, and also identified factors that influenced the development and sustenance of these degree options for adult learners. The first phase of the project studied all 50 states to determine the extent to which the degrees were offered, as well as contributing factors that led to the creation of the degrees (or decisions not to create the degrees, when applicable). The second phase provided an in-depth examination of six states with notable policies and practices (Arizona, Florida, Kentucky, Oklahoma, Texas, and Washington).

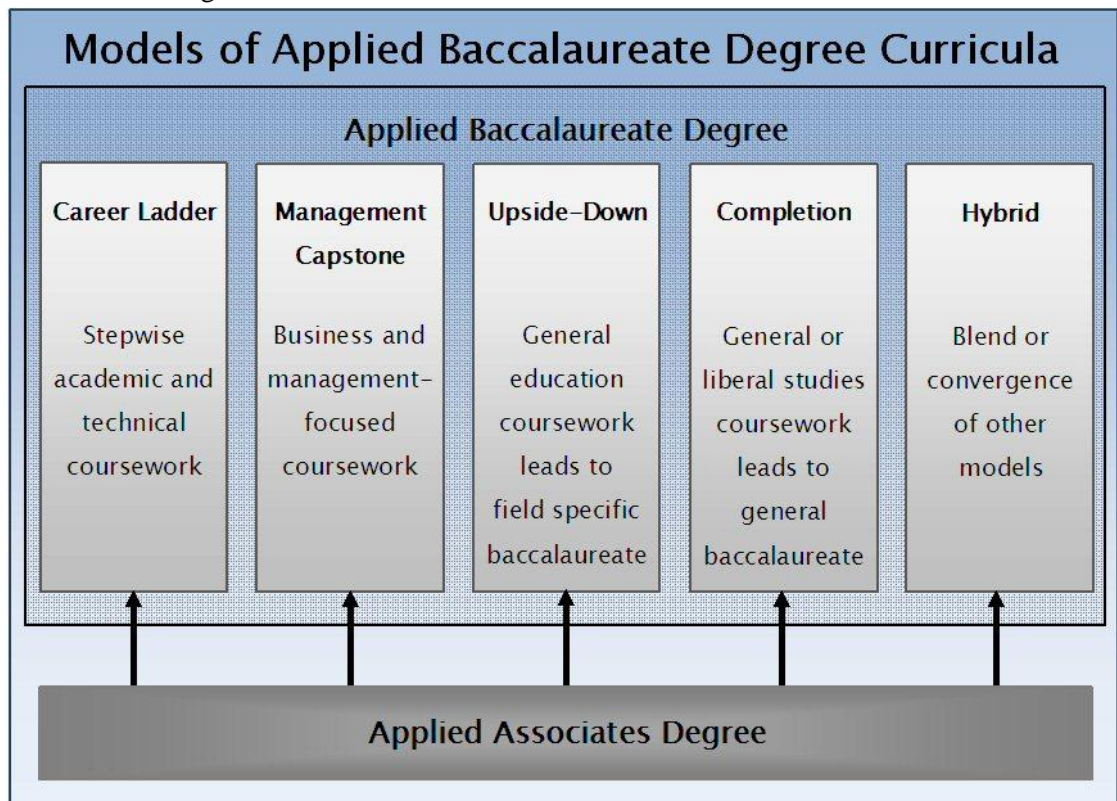
**The Applied Baccalaureate Degree: An Emerging Pathway in Technician Education**

**(2010 – 2014)** *Funded by the National Science Foundations’ Advanced Technological Education (NSF-ATE) Program*

This project is documenting and evaluating NSF-ATE's impact on technician education in the form of applied baccalaureate degree programs in science, technology, engineering, and mathematics (STEM) fields. The goal is to provide college administrators and instructors, employers, and researchers with up-to-date, detailed information about program development, maintenance, and outcomes. The first phase of the project (*now completed*) documented the prevalence and scope of applied baccalaureate degrees affiliated with NSF-ATE. In the second phase (*in progress*), we are visiting selected sites to explore degree pathways in detail.

**What do  
Applied  
Baccalaureate  
Degrees  
Look Like?**

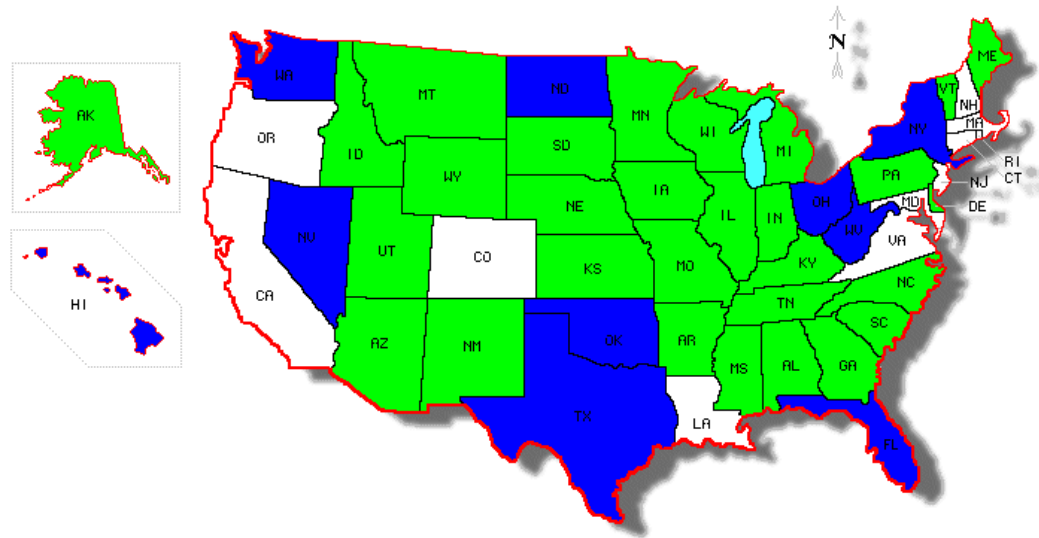
We have identified five models of upper-division curriculum associated with applied baccalaureate degrees.



**Where can Applied Baccalaureate Degrees be Found?**

According to our 2008 report, applied baccalaureate degrees can be found in 39 states.

- - 4-year only
- - 2-year/4-year



See the inventory appendices for profiles of applied baccalaureate activity in each state:

<http://ocrl.illinois.edu/files/Projects/lumina/Report/AppBaccInventory.pdf>

Our case study work in Arizona, Florida, Kentucky, Oklahoma, Texas, and Washington provides information on applied baccalaureate offerings in greater detail.

<http://ocrl.illinois.edu/files/Projects/lumina/Report/LuminaABFinalReport.pdf>

Finally, in our recent work in STEM technician education, we discovered 95 applied baccalaureate degree pathways across the U.S., nearly 10% of which were currently in development.

[http://ocrl.illinois.edu/files/Projects/nsf\\_ab/NSF-AB-TechReport-2012.pdf](http://ocrl.illinois.edu/files/Projects/nsf_ab/NSF-AB-TechReport-2012.pdf)

**What do Key Stakeholders Think of Applied Baccalaureate Degrees?**

*(EARLY Findings from our NSF-ATE Study)*

*Example Employer Perspectives –*

*Oklahoma State University Institute of Technology, BT in Information Technology*

*Reflections on Target Student Populations*

Applied baccalaureate programs are a great way for people where they've been displaced to gain if they want to move direction in terms of their career, a great way to provide that kind of capability for individuals. It's a great way for people that may not have an opportunity to get a degree from a large university because they're working or they're doing other things. ... I don't want to say fills gaps because that may be kind of pejorative, but it's a great complement to the large state universities, in my opinion. ... there's a different charter for the applied baccalaureate versus the traditional degree.

*Reflections on Curriculum*

Practical is the key word. ... [Applied programs] actually want to talk about what happens in the setting of a job, and we want to talk about what the structure of the organization is. And we want to talk about why what you're doing is valuable to that organization and how it relates and how it supports that organization. So it really connects the dots. ... that's a key difference in the applied program. There's not only an acknowledgement, but it embraces the fact that the goal here is for you to go out and work.

*Reflections on Hiring Decisions, Comparing Applied and Traditional Bachelor's Degrees*  
Employers like to see the types of coursework [included in applied degrees] versus more theoretical coursework, compiler theory versus data center. I have a data center that I need someone to do stuff in. I don't have anyone that I need to develop a compiler or write an operating system for me.

I think a lot of companies would not recognize any difference [between an applied and traditional bachelor's degree]. ... They see that [a candidate has] a degree, and that tells them that they've been able to make it through 4 years of studies successfully. In all the placements I've done, I haven't seen anybody questioning where the degree was from once they've talked to the person and they see that they do understand the concepts that they need to apply.

I think that the traditional degree, bachelor's degree in computer science maybe prepares people for bigger thinking than the applied baccalaureate. Just because it forces them into classes that push them into larger thinking than just how to solve a particular type of problem. But that's a very general statement, and I go back to what several of us have said, about it depends on the individual. Where they take their career is far more important, and the attitude is far more important than whether they got a BT or a BS.

***Example Student Perspective –***

***Wilmington University, BS in Computer and Network Security***

I did my last degree in another country. Now I transferred here, and I [am completing] my bachelor's degree. I'd like to be an IT specialist or working with a forensics department. Last Friday, I went to a job interview at XXXXX. That was about an IT specialist position. Honestly, during the interview, all the questions they were asking me, I knew it before thanks to all the stuff I've been doing here -- the cybersecurity [student organization], and the competitions we've done, and all the courses. Really it was pretty much easy. And, [the interviewers] were really impressed... they wanted to know much more about the program I was taking so I showed them the curriculum and they were really impressed. Because here they are trying just to give you the necessary stuff you need only. They are not trying to give you a bunch of stuff for nothing. Everything is specific... practical and hands-on. It is really important [and] all of the teachers are here for us.

**What does this mean for Career Professionals?**

Exploring applied baccalaureate degree pathways has several implications for career professionals. It encourages us to:

- Recognize further education as a strategy for career growth and transition.
- Be able to describe how barriers for graduates of “terminal” associate degree programs may not be as impermeable as they may have once seemed. Applied associate degree credits can, and are, applied to bachelor's degrees, decreasing time-to-degree for students.
- Raise awareness of educational pathways that differ from traditional degree programs and cater to the needs of non-traditional student populations. Know about local and regional degree program opportunities for place-bound clients to advance their education.
- Help clients understand how to market their skills developed in applied postsecondary degree programs – how they differ from traditional programs, and the strengths that they bring with the ability to make immediate connections to the workforce.

**For More Information** Visit our applied baccalaureate degree pathways website at:  
[http://occrll.illinois.edu/applied\\_baccalaureate](http://occrll.illinois.edu/applied_baccalaureate)

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