

# Employer Views on Applied Baccalaureate Degrees: Reflections on Hiring Decisions, Salaries, and Promotions

*Roundtable Presentation at the 2012 NSF-ATE PI Conference*

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## **Rationale for Studying Applied Baccalaureate Degrees in STEM Fields**

National calls for raising college completion levels abound

- “We seek to help an additional five million Americans earn degrees and certificates in the next decade” (Obama, 2009).
- 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.

Demand for expertise and training in STEM fields is particularly strong

- 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).

Requires new ways of thinking

- The demands of the current market cannot be met by focusing solely traditional college-going student populations in traditional pathways.
- Must consider more inclusive approaches, with a variety of degree pathways.

## **What is an Applied Baccalaureate Degree?**

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, & Ruud, 2008, p. iv).

Key characteristics of applied baccalaureate degrees include:

- Incorporating applied learning, courses, and degrees
- Technical associate credits and degrees (e.g., AAS) once considered ‘terminal’ now transferred for credit toward a baccalaureate degree
- High-quality degrees and credentials
- Sometimes, but not always, designated by applied credentials such as:
  - Bachelor of Applied Arts (BAA)
  - Bachelor of Applied Arts and Sciences (BAAS)
  - Bachelor of Applied Science (BAS)
  - Bachelor of Applied Technology (BAT)
  - Bachelor of Technology (BT)
- Often designed for returning adult workers and other underserved student populations who seek to further their education credentials
- Provide new opportunities for educational advancement, where they may not have previously existed

**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).

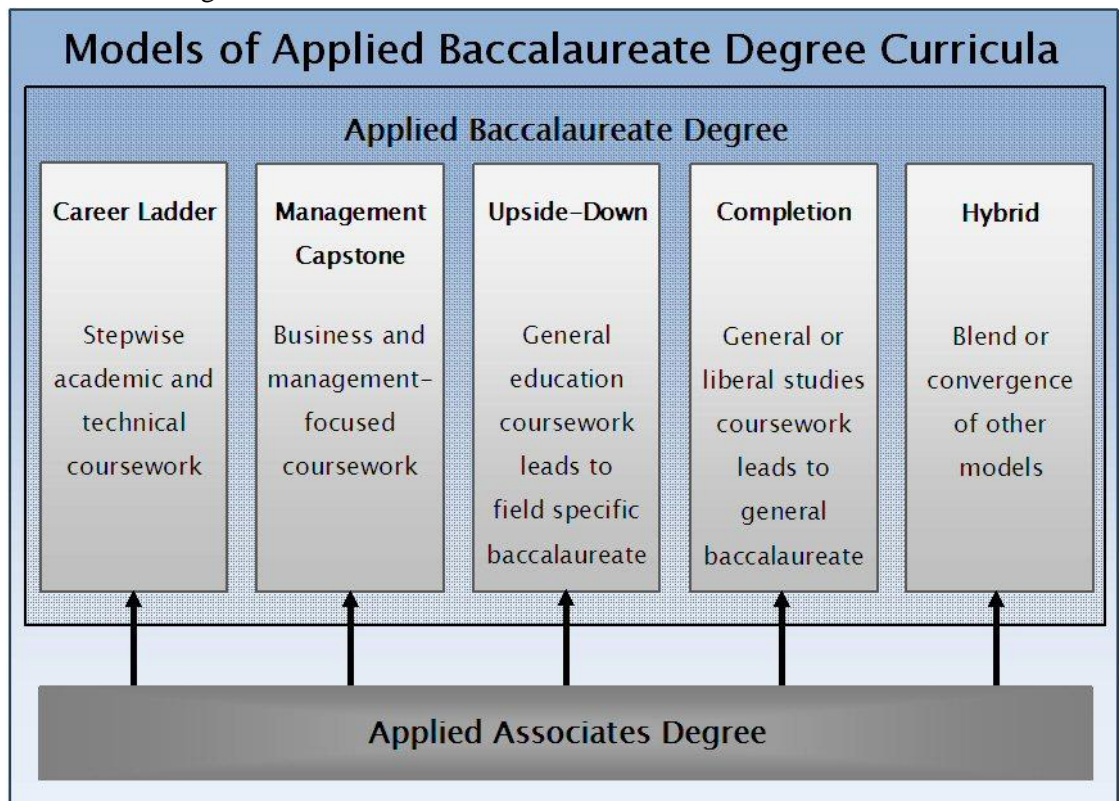
**The Applied Baccalaureate Degree: An Emerging Pathway in Technician Education**

*(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?**

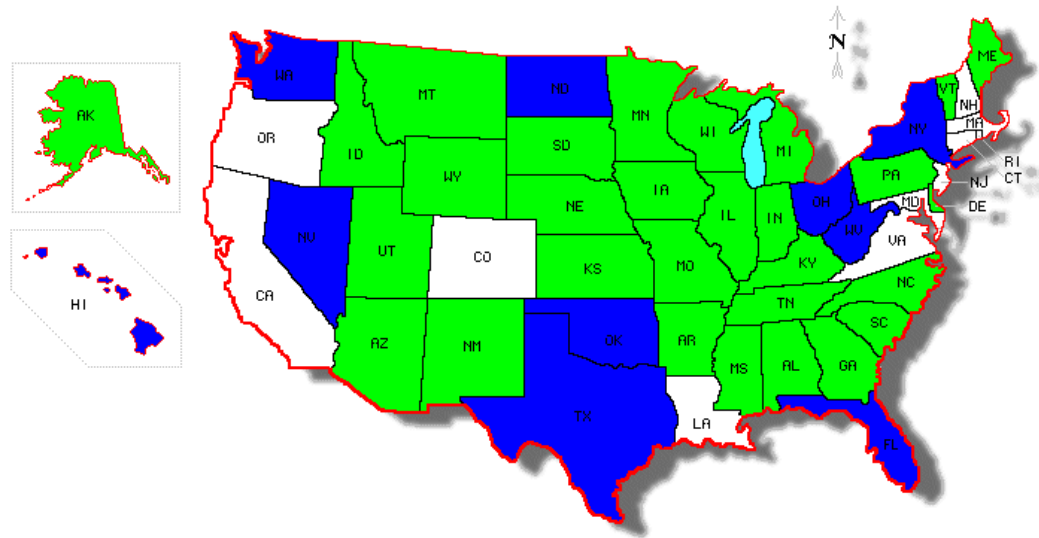
We have identified five models of upper-division curriculum associated with applied baccalaureate degrees.



**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% 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)

**Employer Perspectives**

**(Based on interviews conducted as a part of the ongoing NSF-ATE Study. Note that this data analysis is still in progress. This is an early look at the emerging story.)**

**Differences between Applied and Traditional Degree Programs**

*Some made no distinctions*

- I look at [AS and AAS degrees] basically as the same. ... I guess I never really looked into it too much to determine what the differences are. But, yeah, we're looking mainly for science backgrounds. (HR recruiter for clinical pathology labs)
- I see a bachelor's, and a bachelor's is a bachelor's, is a bachelor's (IT Employer)

*Others drew clear lines*

- I think practical is the key word ... in an applied program, it's not only knowledge, but it's embraced. ... We 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. (IT Employer)
- Part of the role of the traditional bachelor's degree is to also prepare you for an advanced degree: master's, PhD, to head you down that path. ... The portion of it that's focused on furthering your education and that takes away from the time and the ability to focus on practical application. (IT Employer)

## Employer Understandings of Applied Baccalaureate Degrees

### *Value applied learning*

- Contextualized decision-making, thinking, reading, writing skills. Contextualization of the subject matter. It's all about economics. The more that I can do at this environment at the 2-year or 4-year level, the more I can make that individual productive when they hit the shop floor. (Energy / Energy Security Employer)
- [Applied baccalaureate] students that I have had as interns ... They weren't afraid to get in and try to code. ... they've gone on and been able to progress fairly rapidly because of that hands-on experience that they had. (IT Staffing Recruiter)
- When I see the applied technologists or applied technology student or candidate, they have a higher level of knowledge for the actual area. Even if it's just a matter of pipetting. A simple thing like pipetting, they've been trained, where a generalist person with just a bachelor's of science, they actually have to go through an orientation program actually showing them how to pipette in the laboratory. So there seems to be a focus on the actual use and utilization of laboratory tools. (Pathology Lab Director)

### *Seek development of technical expertise, as appropriate for each field*

- They [need to] be able to write code appropriate for somebody just starting... know the right languages, they've done the analysis work. (IT employer)
- Systemic thinking, knowing how to break things and then how to fix things that are broken. My first thought when you said that is we need more people to think like criminals. (IT Employer)
- The fact that it is a high area of complexity, it's also an area, as I said, where there are biohazard materials. So safety is utmost. (Pathology Laboratory Director)
- We're interested in where the next generation of technicians is coming from because we have a very complex and sensitive systems that require a level of understand that doesn't come out of virtually any school. (Energy / Energy Security Employer)

### *Want technical expertise balanced with soft skills and professionalism*

- What's important there is that they have the ability to work on a team, to interact with people. (IT employer)
- What kind of leadership roles (have) they played; ... I'm really looking at how do they build relationships with their coworkers, with their customers? ... Do they play well with others at work? Do they bring drama to the workplace everyday, or do they just come in and get their job done? (IT employer)
- This STEM stuff, the science, the technology, the problem solving, the resilience, that's the stuff that is going to prepare our future generation for what our world is going to look like. (Manufacturing industry representative)
- I expect right from the start ... a respect of information. The technologists will have kind of an open ended view into a patient's record via their diagnostic testing. So it becomes such an issue... there needs to be an understanding of the confidentiality and importance of patient information.(Pathology Lab Director)

*Understood applied baccalaureate degrees as offering opportunity to non-traditional student populations*

- A great way for people where they've been displaced to gain if they want to move direction in terms of their career. (IT Employer)
- I think the term is first generation college students – where going to [a large state university] is a big experience and maybe more than they can afford and more than they can just adapt to. (IT Employer)
- The technician can progress to a certain point .. and that's all they can do. The people who pursue [AB] degrees are the people who desire to move beyond where they are. The people who began a technician degree did so for many reasons – financial, have a family, trying to get in the workforce more quickly, and then want to progress beyond that. (Energy / Energy Security Employer)

*Raised genuine, deep concerns about skilled workforce shortages*

- Biotechnology manufacturing firms are struggling to find skilled workers in information technology or manufacturing positions. Training on-the-job incurs duplicate costs for the employer – it requires taking a skilled worker off the floor, and leaving a machine idle. It is a continual challenge. (Biotechnology Consulting Firm Representative)
- The Cleveland Clinic alone anticipates 400 openings for medical technicians in the next 5 years. Their medical technology education program graduates 12 – 24 medical technologists per year. (Pathology Laboratory Director)
- [Manufacturers] understand that they [will] have a problem [filling] their quotas and the employees that they need. ... People do not know that the United States is the number 1 manufacturer in the world. They do not understand that the baby boomers are getting ready to retire. They don't understand that the trend for offshoring and the companies are coming back here. (Manufacturing Industry Representative)

**Relationship between Degree Type (Applied or Traditional) and Hiring Decisions / Promotions / Salary**

*When an employer perceives a close alignment between the (a) applied baccalaureate degree offerings and (b) desired applied experience, technical knowledge, and soft skills, employer express that there is little difference in the career trajectory (hiring, promotions, or salary) for graduates of applied bachelor's degree programs vs. traditional bachelor's degree programs.*

- It doesn't really matter, at least in the position I was in, whether they would have an applied or a regular B.S. degree. They're going to be hired for the same kinds of functions. (IT Employer)
- 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. (IT Employer)

*When an employer perceives a disconnect between the (a) applied baccalaureate degree offerings and (b) desired applied experience, technical knowledge, and soft skills, employer express that the result is a narrowed set of future career opportunities for the applied baccalaureate degree graduate.*

- If you are going into a technology field and you defined your path as the quickest way to get to a [bachelor's degree] and it has nothing to do with applied technology or critical thinking or problem solving it really doesn't help at all. In fact, it makes it worse. Because then you put them into an arena or a field or a position where they can't contribute. They struggle to contribute at the level of their peers. (Energy / Energy Security Employer)
- These students become associates-level technicians who happen to have a bachelor's degree. There is no opportunity to move up to an engineering position.

### **Employers Perceived that these Disconnects can Stem from Many Sources**

#### *Higher Education Institutions*

- If I want to go [from an applied associate degree to a BS in engineering]. [The promotional materials] may say 36 [upper division] hours to complete, but the pre-requisites make it 50 or 60. ... We're not telling the whole story. (Energy / Energy Security Employer)
- [Students] get the basic skills from their AAS degree. If they want to move into engineering, they need more depth. ... Part of the disconnect is with the [technology colleges] leading [associate degree holders] to believe they have more depth than they have. (Energy / Energy Security Employer)

#### *Involvement of Employers*

- Employers and institutions need significant bridges to understand succession planning. Institutions have to be a part of those plans. Having them understand how we do our business – being a part of the management, succession planning structure. [Employers need to] build into that structure the funding necessary to support new disciplines. (Energy / Energy Security Employer)

#### *Misconceptions held by Students*

- If I get the bachelor's degree, I'll have more options. ... a misperception on the students' part that they just need the paper. (Energy / Energy Security Employer)

### **The Emerging Messages from this Data Analysis Highlight the Importance of...**

- Communication between academic institutions and employer partners to explore alignment between academic programs and career opportunities
- Exploring what messages are communicated to students regarding bachelor's degrees, and understanding students' perceptions of those messages

#### **For More Information**

Visit our applied baccalaureate degree pathways website at:  
[http://occr1.illinois.edu/applied\\_baccalaureate](http://occr1.illinois.edu/applied_baccalaureate)

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