

Census of Baccalaureate Agriculture Teacher Education Programs in the United States



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SBAE Teacher Preparation

Literature has numerous competencies (e.g., Anderson, Barrick, & Hughes, 1992; Birkenholz & Harbstreet, 1987; Edwards & Briers, 1999; Joeger, 2002; Garton & Chung, 1996; Layfield & Dobbins, 2002; Myers & Dyer, 2004; Raven, Cano, Garton, & Shelhamer, 1993; Stripling & Roberts, 2012; Stair, Warner, & Moore, 2012; Stripling & Barrick, 2013)

Lack of research on the baccalaureate course requirements and configuration? (Myers & Dyer, 2004)

Teacher training assessment needed (Findlay, 1992)



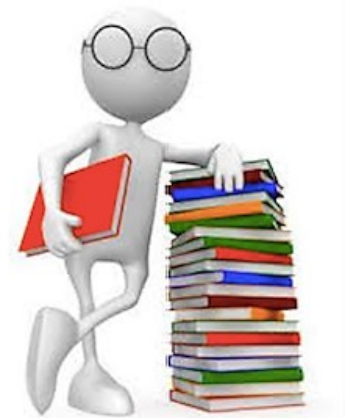
Review of Literature

Cruickshank (1985, 1996)

- General education
- Technical agriculture
- Professional knowledge

Swortzel (1995) – The Ohio State University

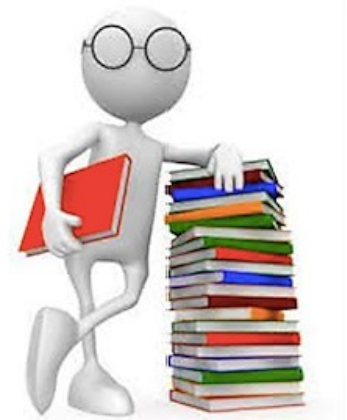
- General education courses - 46 hours
- Technical agriculture - 50 hours
- Professional knowledge - 37 hours



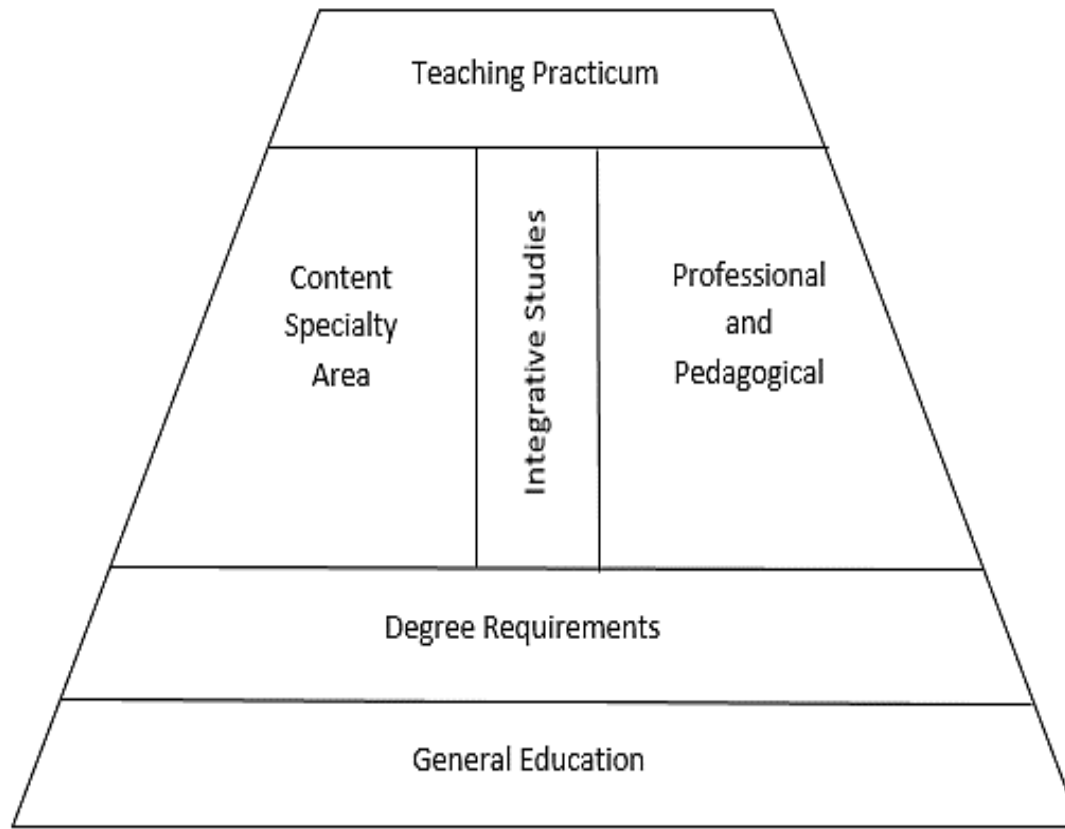
Review of Literature

Swortzel (1999) – 4-year programs

- General education courses – 55.7 hours
- Technical agriculture – 42.8 hours
- Professional knowledge – 35.8 hours



Conceptual Framework – Barrick and Garton (2010)



Purpose

Examine the nation's baccalaureate agriculture teacher education programs of study to synthesize current coursework requirements



Objectives

1. Describe the professional knowledge coursework required by the nation's baccalaureate agriculture teacher education programs.
2. Describe the technical knowledge coursework required by the nation's baccalaureate agriculture teacher education programs.
3. Describe the general knowledge coursework required by the nation's baccalaureate agriculture teacher education programs.

Methods

One-shot case study (Campbell & Stanley, 1963)

Census of baccalaureate programs

Population from Supply and Demand Study (Kantrovich, 2010)



“Data don’t make any sense,
we will have to resort to statistics.”

Data Collection

Step 1- Gather programs of study - University websites

Step 2- Categorize program

- Subcategories professional knowledge - Darling-Hammond (2005)
- Subcategories technical knowledge - AFNR areas
- Subcategories general knowledge - Swortzel (1995)
- Subcategories integrative studies - Barrick and Garton (2010)

Data Collection

Step 3- Verify by other researchers

Step 4- Verification by agricultural educator at each institution



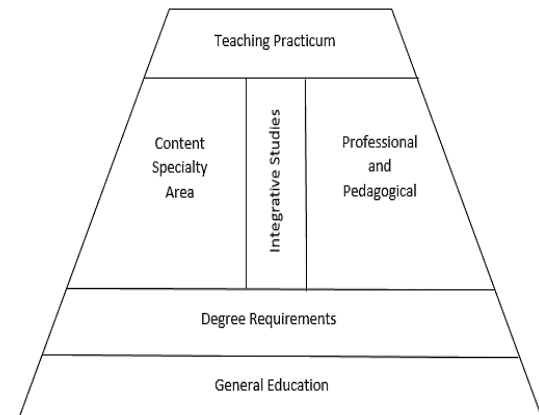
Classification of Courses

Professional knowledge (Desimone, 2005)

- Teaching practicum
- Knowledge of learners and their development in social contexts
- Knowledge of teaching
- Knowledge of subject matter and curriculum goals

Technical knowledge

- 7 AFNR areas & Ag Leadership and communication

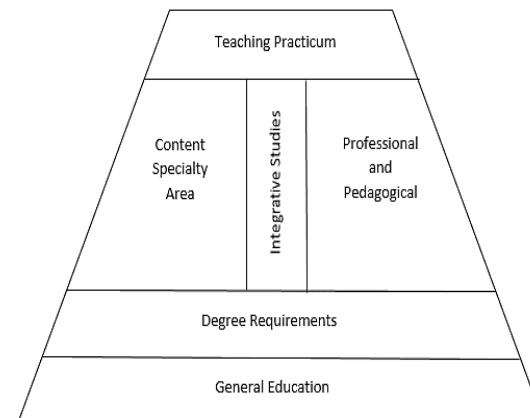


Classification of Courses

General knowledge

- Arts and Humanities
- Mathematics and Statistics
- Natural Sciences: physical, life, earth and space
- Social Sciences

Integrative studies



Results

96.7% ($n = 87$) response rate

Average of 126.5 ($SD = 7.5$) hours total

- Min = 116, Max = 149
- Mode = 126
- Mdn = 125

Results

Professional Knowledge

- Mean 38.1 ($SD = 6.8$)

Technical Knowledge

- Mean 41.8 ($SD = 9.9$)

General Knowledge

- Mean 36.3 ($SD = 8.2$)

Professional Knowledge

Course Classification	<i>M</i>	<i>SD</i>	Mode	<i>Mdn</i>	Min/Max
Professional Knowledge	38.1	6.8	39	38	17-57
Teaching Practicum- Student Teaching	10.6	2.6	12	12	4-16
Teaching Practicum Other	1.6	2.0	0	1	0-8
Knowledge of Learners and Their Development in Social Contexts	6.1	3.7	3	6	0-16
Knowledge of Teaching	10.3	4.1	12	10	3-21
Knowledge of Subject Matter and Curriculum Goals	9.5	3.9	6	9	0-18

Technical Knowledge

Course Classification	<i>M</i>	<i>SD</i>	Mode	<i>Mdn</i>	Min/Max
Technical Knowledge	41.8	9.9	40	43	9-61
Agribusiness Systems	5.6	3.5	3	6	0-19
Animal Systems	6.0	3.8	6	6	0-18
Biotechnology Systems	0.4	1.1	0	0	0-6
Environmental Service Systems	0.7	1.4	0	0	0-6
Food Products and Processing Systems	0.7	1.5	0	0	0-6
Natural Resource Systems	4.3	2.8	4	4	0-16
Plant Systems	6.7	3.6	6	6	0-19
Power, Structural and Technical Systems	5.8	4.3	3	6	0-21
Agricultural Leadership and Communication	3.1	3.3	0	3	0-13
Agricultural or Natural Science Electives	8.5	8.7	0	6	0-36

General Knowledge

Course Classification	<i>M</i>	<i>SD</i>	Mode	<i>Mdn</i>	Min/Max
General Knowledge	36.3	8.2	35	35	3-54
Arts and Humanities	13.4	4.4	15	13	3-24
Mathematics and Statistics	4.7	2.0	3	5	0-12
Natural Sciences- Physical	4.8	2.5	4	4	0-12
Natural Sciences- Life	5.1	2.8	4	4	0-11
Natural Science- Earth and Space	0.1	0.7	0	0	0-4
Social Sciences	8.2	5.8	9	9	0-27

Electives, Other, and Integrative Studies

Course Classification	<i>M</i>	<i>SD</i>	Mode	<i>Mdn</i>	Min/Max
Electives	6.1	9.8	0	0.5	0-45
Integrative Studies	0.8	2.5	0	0	0-13
Other	3.4	3.5	0	2	0-13
Meets Two Knowledge Areas					
Technical and General Knowledge	3.9	6.9	0	0	0-37
Professional and General Knowledge	1.2	2.7	0	0	0-12

Conclusions

Required hours similar in the 3 knowledge areas –
Variety of courses

Min/max values indicated lack of consensus

Technical knowledge

- Specific competency areas (i.e., animal science, plant science)
- No guidelines for courses



Conclusions

Lowest AFNR areas

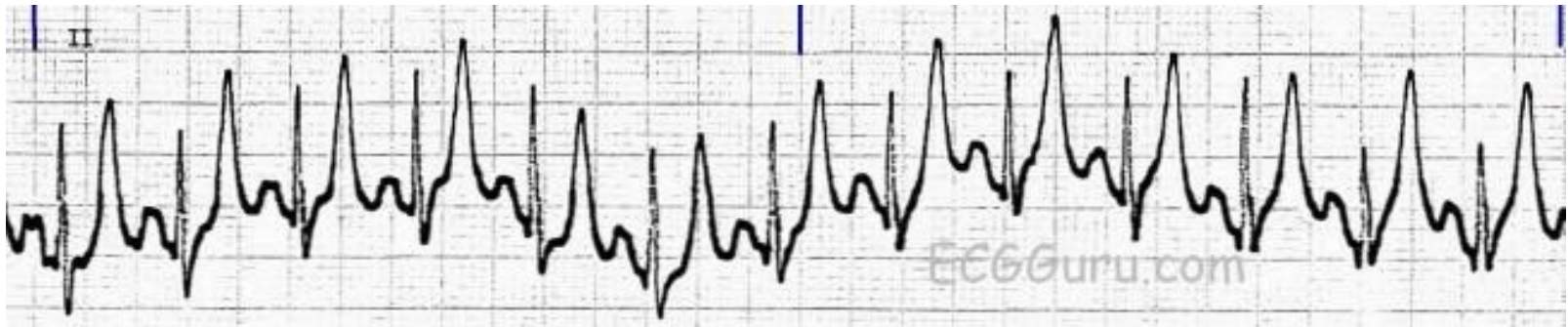
- Biotechnology systems
- Environmental systems
- Food processing systems

Integrative studies were not pervasive



Conclusions

This study provides a quantitative baseline to further explore the ideal course configuration



Recommendations

Empirically determine the ideal blend of programmatic courses

- Determine the most appropriate competencies to include in each area
- Examine the most appropriate blend of professional knowledge courses
- Determine the most ideal timing and sequencing of field experiences
- Investigate the effect of completing a specialization in technical knowledge courses and/or a diverse offering of technical courses
- Investigate the role of general knowledge courses as they relate to imbedding concepts related to STEM, history, and social science in the agriculture curriculum

Recommendations

Other agricultural disciplines should undertake comparable lines of inquiry to test new ideas and refine/improve academic offerings



Thank You!

