
*Why National Standards and
Accreditation are Needed for
Baccalaureate Degree Programs in Biology*

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Petersburg

John Moore, Taylor University and President,
The National Association of Biology
Teachers (NABT)

Overview of this Session

-
- Quick primer on accreditation – D’Elia
 - Summary of status of US undergraduate biology education – Moore
 - Preview of NABT’s 4-Year college guidelines – Moore
 - Next steps?: activities, leadership, timeline, support, etc. – D’Elia
 - Group Discussion

A Brief Primer on Postsecondary Accreditation

- Main Types
 - Institutional – National/Regional (e.g. North Central Association of Colleges and Schools)
 - Programmatic – Specialized, professional degrees (e.g. ACS)
- Information Sources on Accreditation
 - Council for Higher Education Accreditation (CHEA)
 - U.S. Department of Education's Office of Postsecondary Education

- “The goal of accreditation is to ensure that education provided by institutions of higher education meets acceptable levels of quality.
- “Accrediting agencies, which are private educational associations of regional or national scope, develop evaluation criteria and conduct peer evaluations to assess whether or not those criteria are met.
- “Institutions and/or programs that request an agency's evaluation and that meet an agency's criteria are then ‘accredited’ by that agency.”



[Home](#) | [FAQs about Accreditation](#) | [FAQs about Institutional Accreditation System](#) | [Help](#)

Begin your search by entering and selecting criteria in the form below.

Name of institution

Institutional Accrediting Agencies

- Any
- Accreditation Commission for Acupuncture and Oriental Medicine
- Accrediting Bureau of Health Education Schools
- Accrediting Commission of Career Schools and Colleges of Technology

Specialized or programmatic Accrediting Agencies

- Any
- Accreditation Commission for Acupuncture and Oriental Medicine
- Accreditation Council for Pharmacy Education
- Accrediting Bureau of Health Education Schools

Geographic region

- Any
- US Service schools
- New England - CT ME MA NH RI VT
- Mid East - DE DC MD NJ NY PA

State or outlying area

- Any
- Alabama
- Alaska
- American Samoa

Address

City

Search

Reset

The US Dept. of Education's Office of Postsecondary Education Accreditation Database



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George Washington University

OPE ID: 00144400

General Information

2121 I Street, NW
Washington, DC 20052
Phone: 202-994-1000

For more information about this institution, visit www.gwu.edu

Note: "*" in front of the accredited date denotes an estimated date.

ACCREDITATION

Institutional Accreditation

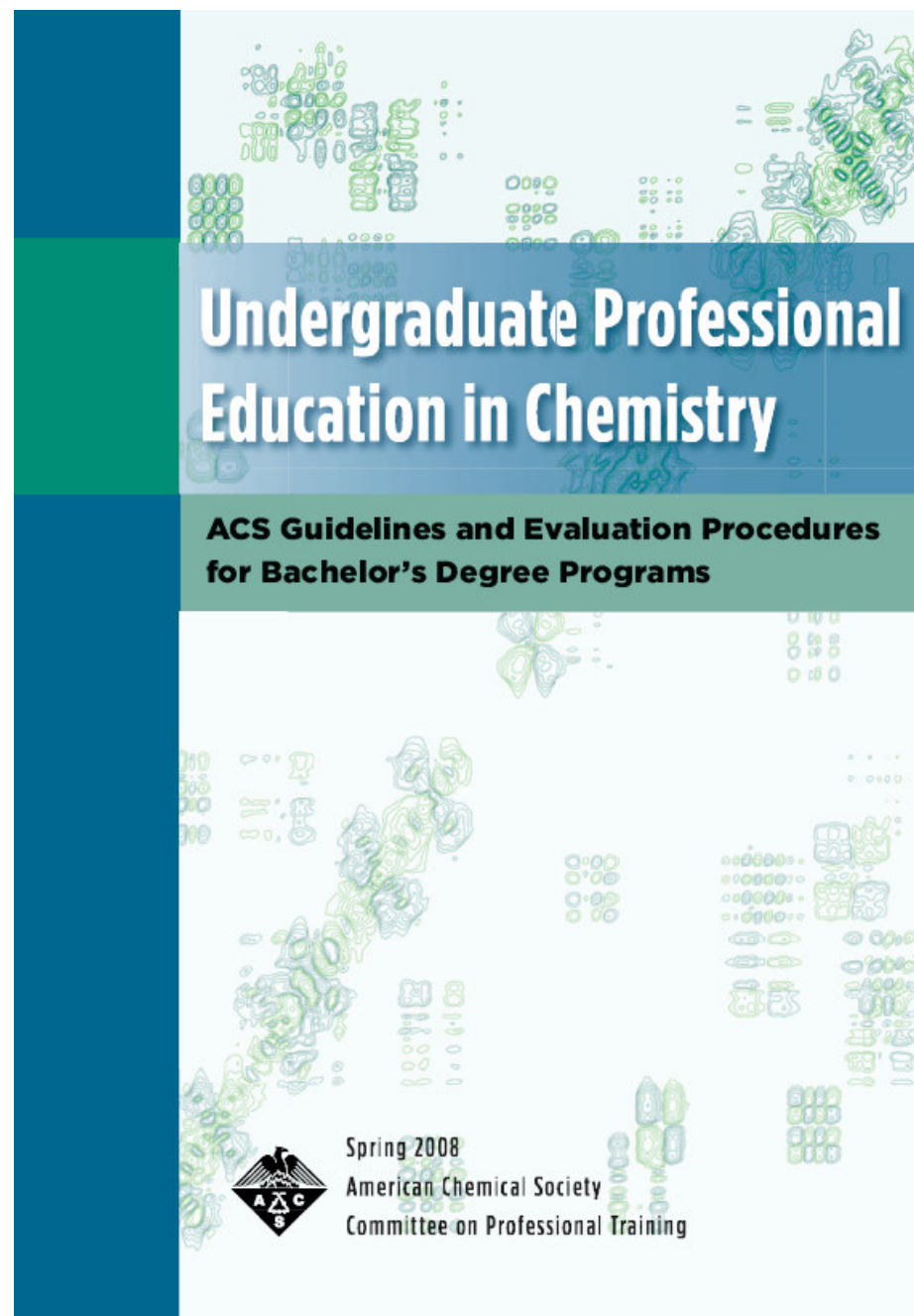
Agency Name	Periods of Accreditation	Action
<u>Middle States Association of Colleges and Schools, Commission on Higher Education</u>	*7/1/1922 -	Accredited

Specialized Accreditation

Agency Name	Program Name	Periods of Accreditation	Action
<u>American Bar Association, Council of the Section of Legal Education and Admissions to the Bar</u>			
	- Law (LAW) - Professional schools	1/1/1923 -	Accredited
<u>American Physical Therapy Association, Commission on Accreditation in Physical Therapy Education</u>			
	- Physical Therapy (PTA) - Professional programs for the physical therapist	5/2/2001 -	Accredited
<u>American Psychological Association, Committee on Accreditation</u>			
	- Clinical Psychology (CLPSY) - PhD Doctoral programs	4/1/1970 -	Accredited
	- Clinical Psychology (CLPSYD) - PsyD Doctoral programs	2/16/2001 -	Accredited
	- Professional Psychology (IPSY) - Predoctoral internship programs	4/11/1989 -	Accredited
<u>American Speech-Language-Hearing Association, Council on Academic Accreditation in Audiology and Speech-Language Pathology</u>			
	- Speech-Language Pathology (SP) - Graduate degree programs	11/8/1971 -	Accredited
<u>Commission on Accreditation of Healthcare Management Education</u>			
	- Health Services Administration (HSA) - Graduate programs in health services administration	*7/1/1968 -	Accredited
<u>Commission on Collegiate Nursing Education</u>			
	- Nursing (CNURED) - Nursing education programs at the graduate degree levels	4/8/2006 -	Accredited
<u>Council on Education for Public Health</u>			
	- Public Health (PH) - Graduate schools of public health	6/1/1990 -	Accredited
<u>Liaison Committee on Medical Education</u>			
	- Medicine (MED) - Programs leading to the M.D. degree	*7/1/1942 -	Accredited
<u>National Association of Schools of Music, Commission on Accreditation, Commission on Community/Junior College Accreditation</u>			
	- Music (MUS) - Institutions and units within institutions offering degree-granting and/or nondegree-granting programs	9/1/1979 -	Accredited
<u>National Council for Accreditation of Teacher Education</u>			
	- Teacher Education (TED) - Baccalaureate and graduate programs for the preparation of teachers and other professional personnel for elementary and secondary schools	1/1/1954 -	Accredited

An Example Search of the USDEd. Database

A Well Known Example of
Programmatic, Professional
Accreditation – *American
Chemical Society, Committee
On Professional Training*



Is There Any Common Curriculum for Undergraduate Biology Majors in the 21st Century?

KERRY CHEESMAN

IAN CHEESMAN

NANCY SWAILS

JERRY THOMAS

Capital University, Columbus, OH

DONALD FRENCH

Oklahoma State University

BioScience, June 2007, pp. 57(6): 516-522

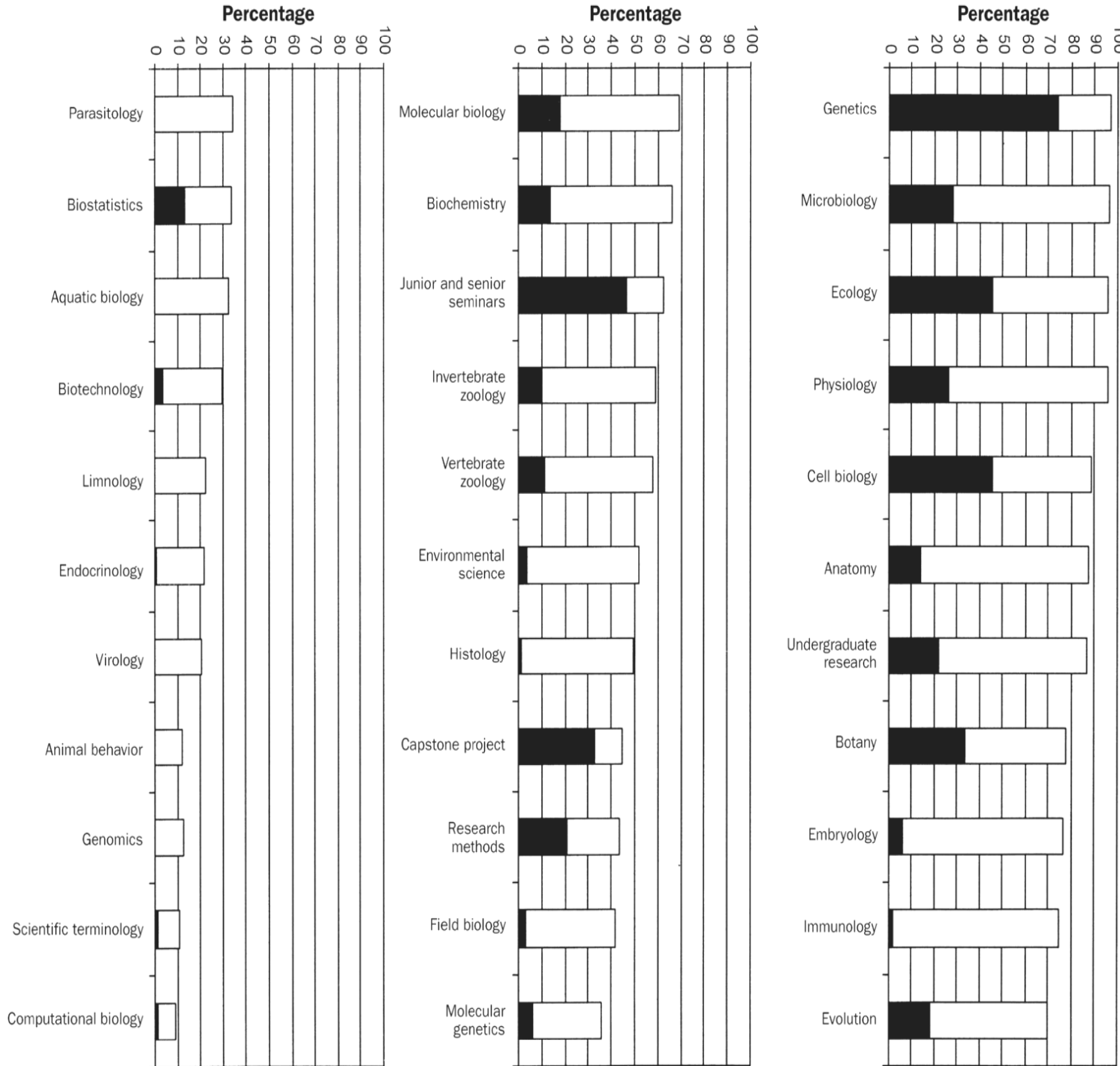
Survey Results

- 403 surveys returned (a 45% response rate)
- 77% of the completed surveys were returned from biology or biological sciences departments
- 18% were from natural sciences departments
- 3% were from science departments with mixed names
- 2% were from other sources

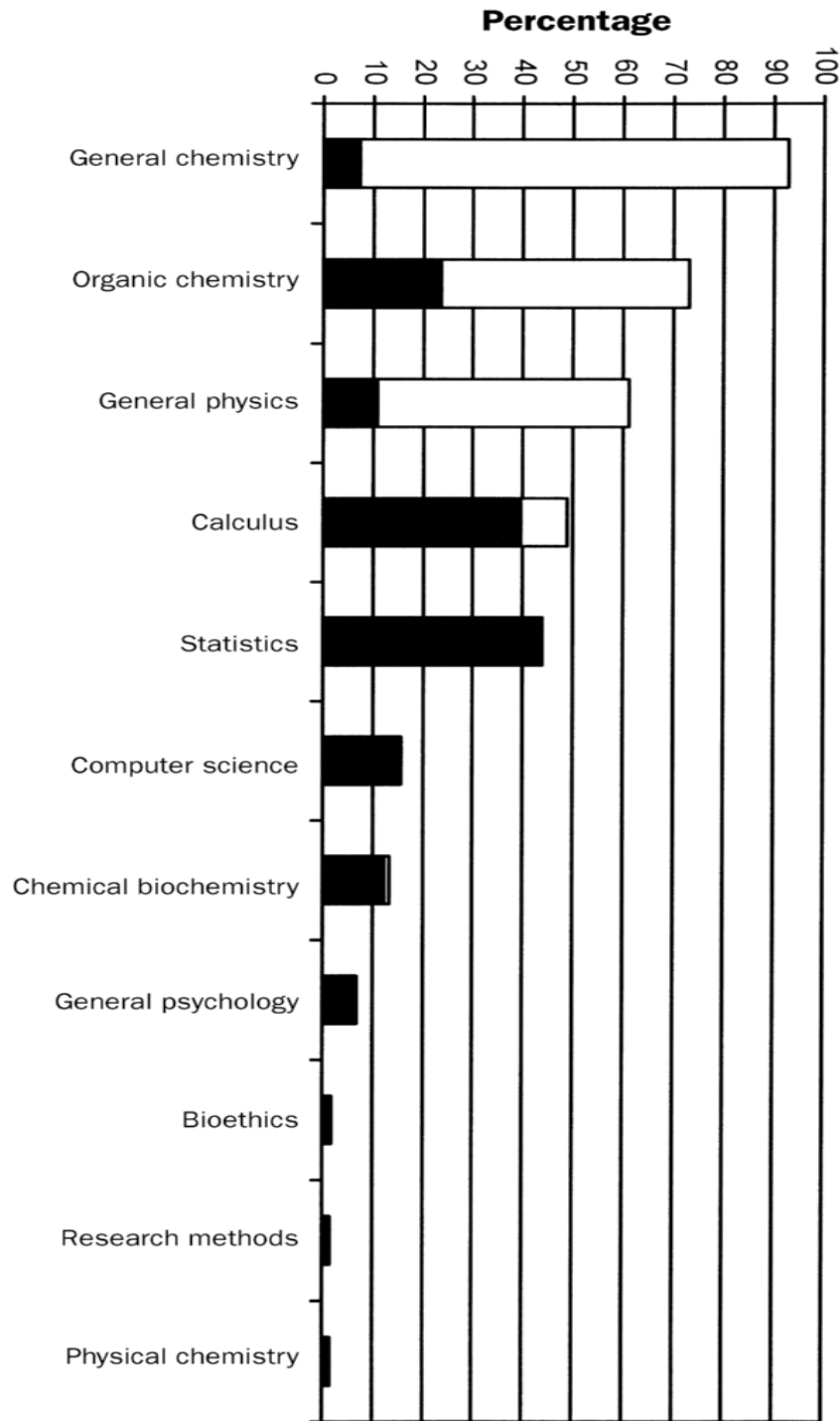
Table 1. Percentage of biology departments requiring each course in the 1990 study by Heppner and colleagues and in the 2005 study.

Course	1990 (N = 204)	2005 (N = 403)	Change (percentage)
■ Genetics	75	72	–
■ Ecology	48	45	–
■ Evolution	18	18	–
■ Physiology	39	27	-31
■ Biochemistry	6	26	333
■ Cell biology	40	45	–
■ Molecular biology	11	17	55
■ Microbiology	21	28	33
■ Botany	36	32	–
■ Zoology	43	22	-49
■ Seminars	33	47	42
■ Research	8	21	163
■ General chemistry	77	92	19
■ Organic chemistry	73	71	–
■ Physics	57	60	–
■ Calculus	58	49	-16
■ Statistics	16	43	169

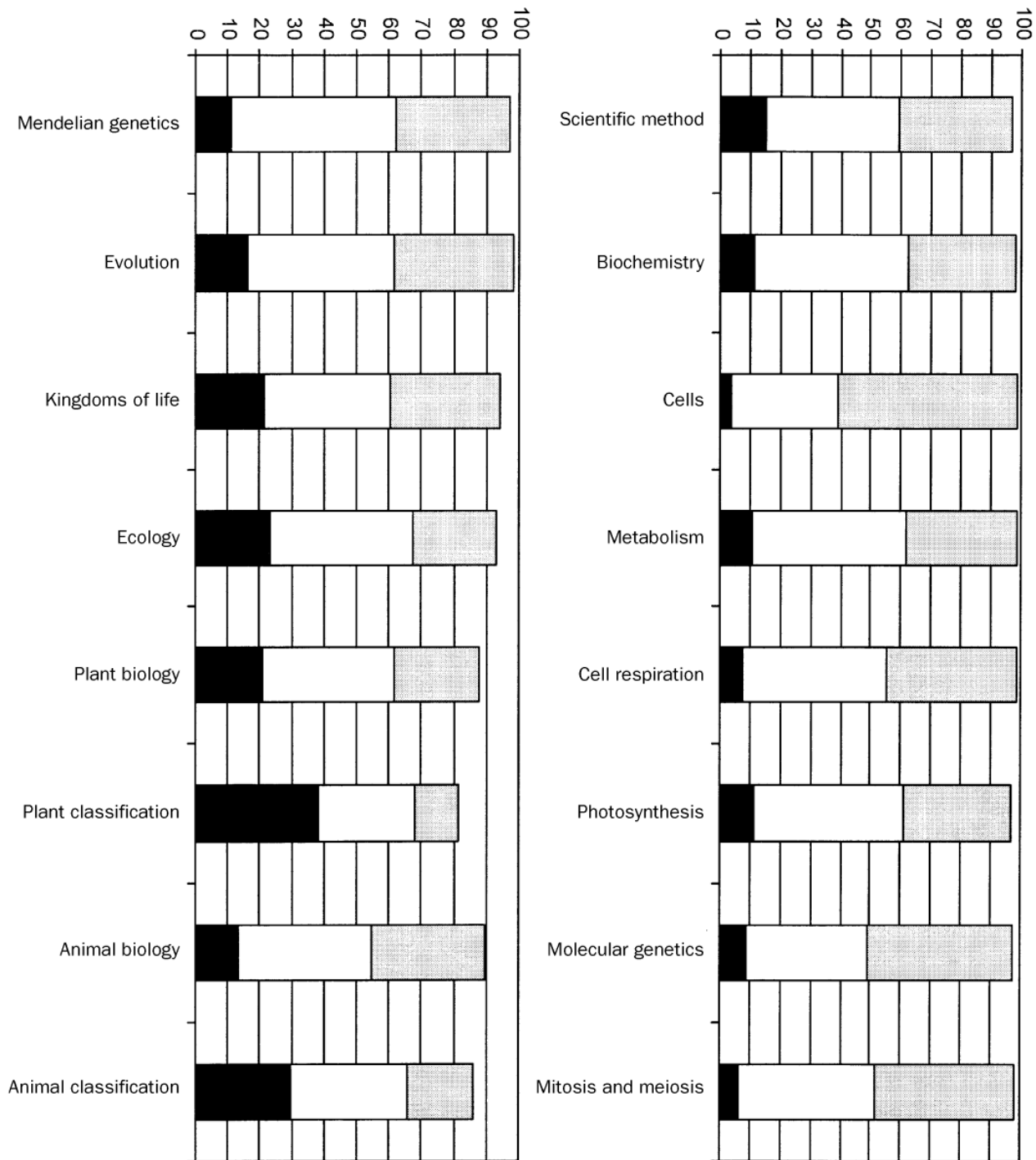
■ **Boldface = Statistically Significant**



*Figure 1.
Percentage of
biology
departments
requiring each
course*



*Figure 2.
Percentage of
biology
departments
requiring each
course*



*Figure 3.
Freshman
biology
course
content.*

Guidelines for Evaluation of Four-Year Undergraduate Programs in Biology

History

- 1999 NABT Four-Year College Section addressed a proposal for evaluating and certifying college and university departments offering undergraduate degrees in biology.
- Eileen Gregory served as Coordinator.
- 2003 Four-Year Section excepted the guidelines
- 2005 NABT Board returned for up-dating
- 2007 4-Year committee assigns Ann Lumsden
- 2008 Ann's committee finalized guidelines
- 2008 Approved by NABT's Board of Directors

Need for NABT Guidelines



Education Summit

- Past 20 years professional biological societies have attempted certification programs
 - None resulted in the establishment of a certification program.
- NABT guidelines define characteristics that distinguish high quality educational biology programs.
 - Restricted to undergraduate bachelor degree in biology; not botany, microbiology, molecular biology, zoology, etc.
- Purpose:
 - help departments assess educational programs with an external "authority" for assessment.
 - Provide biology departments with a rationale for improvements.



- **Faculty and Professional Development**
 - *Recommendations for Faculty Size and Composition*
 - *Recommendations for Teaching Load*
 - *Recommendations for Professional Development*
- **Curriculum**
 - *General Recommendations*
 - *Graduation Requirement*
 - *Curriculum Requirements*
- **Support Staff**
 - *General Recommendations*
 - *Recommendations for Support Staff*
- **Technology**
 - *General Recommendations*
 - *Recommendations for Faculty*
 - *Recommendations for Students*
- **Laboratory Instrumentation**
 - *General Recommendations*
- **Community Outreach**
 - *General Recommendation*
 - *Examples of Providing Human Resources*
 - *Examples of Providing Physical Resources*

Guideline Evaluation Criteria

Summary and Questions

- Perhaps it is time to recognize that “biologist” may not be the best title for a new college graduate
 - that a specialty title might be a better indicator
- A smaller core in biology,
 - followed by “tracks” or “concentrations” of specialization such as biochemistry and molecular biology, environmental biology, or wildlife biology
- Would this better serve the graduate programs and employers of the 21st century?
- Might it be easier than trying to implement a unified curriculum across the nation?
- Has biology grown too big to have a unified curriculum? Do we even need general biologists?

Thought & Discussion About Accreditation

Some Advantages

- Ensures quality
 - Curriculum
 - Faculty
 - Graduates
- Fosters assessment culture
- May increase opportunities for external funding
- Promotes minimum standards
- Enhances candidate institution's support of program
- Provides peer and public recognition

Some Disadvantages

- Is difficult to deal with diverse and complex field (e.g. Biology)
- Is both:
 - Complex to institute, and
 - Costly to manage and obtain
- Adds administrative burden to
 - Accreditors (agency or professional society)
 - Candidate institutions
- Reduces an educational program's autonomy

Some Alternatives and Approaches to Consider

- Limited Credentialing
 - Subfields or tracks in the larger discipline or program
- Self Study
 - Define and implement “standardized curricula”
 - Develop voluntary assessment criteria, guidelines and checklists
 - Employ *Concept Inventories* to aid in assessment of instructional effectiveness and student comprehension of key/core concepts
- Certification – Individuals, not programs (e.g. ESA)
 - Not accreditation, but is another way to ensure quality

“Concept Inventory”

A multiple-choice assessment instrument that:

- Indicates the level of understanding and misconceptions held by students about key concepts in a field
- Identifies topics that students find confusing
- Helps encourage students to think critically
- Increase students' comprehension of key or core concepts

Other Challenges

-
- Using & assessing new technologies, e.g. distance learning, podcasts, etc.
 - Incorporating undergraduate research
 - Fostering interdisciplinarity and “3-dimensionality” (liberal education) in curricula
 - Reaching historically underrepresented groups & iGeneration learners
 - Dealing with non-science challenges (Creationism)

Next Steps?

- Activities
- Leadership
- Participation
- Support
- Timeline