## How NCTQ scores the High School Content Standard

## Standard and indicators

## Data used to score this standard

Evaluation of high school ${ }^{1}$ teacher preparation programs on Standard 8: High School Content uses the following sources of data:

- State regulations that specify the types of high school teacher certification available
- State documents that outline possible teaching assignments for teachers with each type of certification
- Course requirements and descriptions found in institution of higher education (IHE) catalogs
- Degree plans provided by IHEs
- Relevant IHE web pages, including web pages for the college of education and the registrar, and those relevant to graduate school admission
- Admissions-related documents, including transcript review forms


## Who analyzes the data

Two general analysts evaluate each program using a detailed scoring protocol from which this scoring methodology is abstracted. For information on the process by which scoring discrepancies are resolved, see the "scoring processes" section of the General Methodology.

## Scope of analysis

There are four major steps in analysis. First, the secondary certifications offered in each state are examined. Second, an evaluation of licensure test adequacy is completed for each certification. Next, the majors leading to certification are identified for each secondary program. (More discussion of evaluation using coursework descriptions is found here. Finally, if licensure tests are not adequate for a specific certification, analysts examine the coursework preparation required by individual secondary majors.)

[^0]

A detailed explanation of each step in this process follows. Evidence of coursework satisfying Indicators 8.2-8.5 follows the scoring process explanation.

## State certification context

As illustrated in the High School/Secondary Certification Framework Infographics, each state has a unique organization for secondary certification, making it necessary to evaluate this standard within a state context. Evaluation begins by using state regulations to identify all certifications available to teach at the high school level in the core subject areas or "pathways" 2 of English, mathematics, the sciences, and the social sciences.

Certifications within the sciences and social sciences pathways can be either single subject or multiple subject. Single-subject certifications allow an individual to teach only the subject specified on the certification. Multiplesubject certifications allow an individual to teach in two or more subject areas. The most common certifications of each type are listed below:


## Multiple-subject Certifications

Physical Science (Physics and Chemistry) • General Science (Biology, Chemistry, Earth and Space Sciences, and Physics) • Social Studies (Economics, Geography, History, Political Science, and Psychology)

After determining the organization of secondary certifications for a state, we review all available information on which secondary-level courses the state allows a teacher with a given certification to teach. For example, in most states, single-subject certification in biology only allows teachers to teach biological science courses. However, in Illinois and Oregon an individual certified in biology can also teach chemistry and physics courses. Consequently, in those two states, biology is treated as a multiple-subject certification.

[^1]
## State licensure context

With each state's approach to certification fully researched, evaluation of this standard continues with a review of the state licensing test(s) required for each certification. Under Indicator 8.1, if a test adequately measures content knowledge for the subject(s) for which certification is sought, content preparation is deemed adequate without any examination of course requirements for majors leading to those certifications. For this edition of the Review, a test is considered to adequately measure content knowledge if it has a cut-score that ensures that 5 percent or more of test-takers do not pass. ${ }^{3}$ Note that in the case of multiple-subject certifications, such as general science or social studies, the state must require a separate test for each subject area covered under the certification to satisfy content preparation requirements. ${ }^{4}$

Because there is generally only single-subject certification in the English and mathematics pathways, evaluation under Indicators 8.2 and 8.3 with either licensing tests or coursework requirements is straightforward, and examples are not provided in this methodology discussion. The tremendous diversity of certifications in the sciences and social sciences pathways, however, complicates their evaluation. The High School/Secondary Certification Framework Infographics show the structure of secondary certification in each state. Examples of how we deal with these complications in evaluating undergraduate teacher preparation programs in Alabama and Colorado, two states with substantially different secondary certification frameworks, may therefore prove helpful.

[^2]
## How evaluation of the secondary program context and analysis of the standard differs by state: An example in the social sciences pathway

The graphics below illustrate the organization of the two states' social sciences pathway, related certificationspecific testing and resulting method of NCTQ evaluation:


Because the "general social science" certification in Alabama and the "social studies" certification in Colorado allow for teaching assignments in any social sciences course, and neither state requires adequate testing for this certification, an evaluation of coursework for corresponding majors is necessary. While the social studies certification is the only certification offered in Colorado's social sciences pathway, Alabama offers additional single-subject certifications in this pathway, each with appropriately matched possible secondary assignments and adequate testing. Because these certifications are adequately tested in Alabama, an evaluation of coursework for their corresponding majors is not required.

## Identification of secondary certification majors

The majors leading to secondary certification offered by each IHE are identified. Because this identification is central to evaluation, two analysts independently complete this work, and a third analyst reconciles the results, investigating all discrepancies. The end product for each state is an extensive database identifying the pathways offered at each program, as well as the majors available in the social sciences and sciences pathways. Below are examples of an entry for an IHE in Alabama and Colorado. The majors requiring coursework evaluation because of inadequate licensure testing are circled in red:

| University | State | High School Pathways |  |  |  |  | High School Social Studies Majors | High School Science Majors |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Initial Cert. | Undergraduate |  |  |  |  |  |
|  |  |  | Eng | Math | SS | Sci |  |  |
| Sample IHE | Alabama | Yes | Yes | Yes | Yes | Yes | Social Studies, <br> History, Politica Science | General Science, Physical Science, Biology, Chemistry, Physics |


| University | State | High School Pathways |  |  |  |  | High School Social Studies Majors | High School Science Majors |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Initial Cert. | Undergraduate |  |  |  |  |  |
|  |  |  | Eng | Math | SS | Sci |  |  |
| Sample IHE | Colorado | Yes | Yes | Yes | Yes | Yes | ial Studi ory, Politi Science | General Science, Physical Science, Biology, Chemistry, Physics |

## Analysis

A secondary program satisfies Indicator 8.5 if all majors offered ensure adequate content knowledge for the relevant certifications. In turn, this means that multiple-subject certifications require either the equivalent of 30 semester credit hours (SCHs) in history or 15 SCHs in at least two social sciences, one of which must be in history, with economics, political science or psychology as the possible second 15 SCHs minor. Single-subject certifications that are not adequately tested require 30 SCH in the licensed subject area. Up to five majors per program are examined under Indicator 8.5 until one fails or all pass. ${ }^{5}$

In Alabama, as discussed above, only the general social science certification is not adequately tested. As a result, majors leading to that certification are analyzed first; if they require adequate coursework, the history and political science majors automatically pass because of state certification tests.

[^3]When there is only a single certification for the social sciences pathway, such as in Colorado, majors are scored in order of weakest to strongest because all majors allow for the same teaching assignments. The order of analysis is predetermined in each state to ensure consistency. In Colorado (and most other states), the following order of evaluation is followed when multiple majors lead to the state's "general social science" certification:


The following examples illustrate how undergraduate majors in the social sciences pathway in Alabama and Colorado have been evaluated under this standard:

| University | State | Certification | Majors | Subject-area Credit Counts |  |  |  |  |  |  |  | Pathway Outcome |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | HIS | PS | ECON | PSYCH | GEOG | SOC | ANTH | Unassigned* |  |
| Troy University | Alabama | General Social Science | Social Science | 3 | - | - | - | - | - | - | 33 |  |
|  |  | History | History | Not evaluated because Social Science major failed analysis |  |  |  |  |  |  |  |  |
| University of North Alabama | Alabama | General Social Science | General Social Science | 30 | 12 | 6 | - | 20 | - | - | 6 | Pass |
|  |  | Geography | Geography | Passes with state licensure test - coursework evaluation not required |  |  |  |  |  |  |  |  |
|  |  | History | History | Passes with state licensure test - coursework evaluation not required |  |  |  |  |  |  |  |  |
| University of Northern Colorado | Colorado | Social Studies | Geography | 12 | 3 | 3 | - | 39 | - | - | - | Fail |
|  |  |  | Africana Studies | Not evaluated because Social Science major failed analysis |  |  |  |  |  |  |  |  |
|  |  |  | Mexican-American Studies | Not evaluated because Social Science major failed analysis |  |  |  |  |  |  |  |  |
|  |  |  | Social Science | Not evaluated because Social Science major failed analysis |  |  |  |  |  |  |  |  |
|  |  |  | History | Not evaluated because Social Science major failed analysis |  |  |  |  |  |  |  |  |
| Western State College | Colorado | Social Studies | Economics | 15 | 15 | 27 | - | 9 | - | - | - | Pass |
|  |  |  | Politics \& Government | 15 | 33 | 12 | - | 9 | - | - | - |  |
|  |  |  | History | 36 | 9 | 9 | - | 9 | - | - | - |  |

[^4]Note that for each secondary program, the final determination is a "pathway outcome" pass or fail. In order for the secondary program's social sciences pathway to pass, all majors in all certifications must satisfy Indicator 8.5 .

## How evaluation of the secondary program context and analysis of the standard differs by state: An example in the social sciences pathway

The evaluation of preparation in the sciences is completed in the same manner as in the social sciences. With Alabama and Colorado continuing as examples, the tables below illustrate the certifications in the two states' sciences pathway, related certification-specific testing, and resulting method of NCTQ evaluation:


## Identification of secondary certification majors

After considering whether each certification has licensure-test requirements that ensure adequate content preparation, coursework evaluation is necessary for the science majors circled in red below:

| University | State | High School Pathways |  |  |  |  | High School Social Studies Majors | High School Science Majors |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Initial Cert. | Undergraduate |  |  |  |  |  |
|  |  |  | Eng | Math | SS | Sci |  |  |
| Sample IHE | Alabama | Yes | Yes | Yes | Yes | Yes | Social Studies, History, Politial Science | General Science, Physical Science, <br> Biology, Chemistry, Physics |



## Analysis

A secondary program satisfies Indicator 8.4 if all majors offered ensure adequate content knowledge for the relevant certifications. Single-subject certifications require 30 SCHs in the licensed subject area. Multiplesubject certifications require at least 15 SCHs in any two sciences: biology, chemistry, earth and space sciences, or physics. Up to five majors per program are examined under Indicator 8.4 until one fails or all pass. ${ }^{6}$

In the case of multiple science majors leading to the same certification, the order in which majors are examined is shown below:

| Order of Evaluation of Majors <br> in the Sciences Pathway |
| :---: |
| General Science |
| Physical Science |
| Life/Natural Science |
| Geology |
| Physics |
| Chemistry |
| Biology |
| Earth and Space Sciences |

[^5]The following examples illustrate how the majors for certifications in the sciences pathway at several IHEs in Alabama and Colorado have been evaluated under this standard:

| University | State | Certification | Majors | Subject-area Credit Counts |  |  |  |  | Pathway Outcome |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Biology | Chemestry | Physics | Earth Science | Unassigned |  |
| Alabama State University | Alabama | General Science | General Science | 24 | 24 | 18 | - | - | Pass |
|  |  | Chemistry | Chemistry | Passes with state licensure test - coursework evaluation not required |  |  |  |  |  |
|  |  | Biology | Biology | Passes with state licensure test - coursework evaluation not required |  |  |  |  |  |
| University of West Alabama | Alabama | General Science | General Science | 23 | - | 8 | 8 | 9 | Fail |
|  |  | Chemistry | Chemistry | Not evaluated because General Science major failed analysis |  |  |  |  |  |
|  |  | Biology | Biology | Not evaluated because General Science major failed analysis |  |  |  |  |  |
| Birmingham Southern College | Alabama | Physics | Physics | Passes with state licensure test - coursework evaluation not required |  |  |  |  | Pass |
|  |  | Chemistry | Chemistry | Passes with state licensure test - coursework evaluation not required |  |  |  |  |  |
|  |  | Biology | Biology | Passes with state licensure test - coursework evaluation not required |  |  |  |  |  |
| Colorado State University - Pueblo | Colorado | Science | Physical Science | 8 | 23 | 22 | 4 | - | Fail |
|  |  |  | Physics | 8 | 10 | 31 | 4 | - |  |
|  |  |  | Chemistry | Not evaluated because Physics major failed analysis |  |  |  |  |  |
|  |  |  | Biology | Not evaluated because Physics major failed analysis |  |  |  |  |  |
| University of Colorado Denver | Colorado | Science | General Science | 20 | 19 | 19 | 10 | - | Pass |

Note that for each secondary program, the final determination is a "pathway outcome" pass or fail. In order for the secondary program's social sciences pathway to pass, all majors in all certifications must satisfy Indicator 8.5.

## More information about analysis of coursework requirements

How do analysts evaluate course menus? A major allowing teacher candidates to select from a menu of course choices can affect the credit count in coursework evaluation when it includes courses in subjects that do not suffice for content preparation for any given pathway. For example, a social studies major may allow candidates to choose eight courses from among seven social science subject areas with the only restriction being that credits are distributed over at least three of them. While a candidate might select courses that fall almost entirely within the history minor and the second minor required (government/political science, economics or psychology) by Indicator 8.5 , it is also possible that none of the eight courses will do so. For this reason, the major would fail on analysis and the secondary program would fail on evaluation of the social sciences pathway.

Below is an example of how analysts evaluate a menu of course choices for part of a major in the social sciences. Note that the analyst could create many different combinations of four courses, of which five are listed. While one possibility entails 12 SCH of history coursework, two others contain far less and two contain none at all. Because a teacher candidate might choose the first or the second distribution of coursework, this program would not receive credit for requiring any history coursework in this "choose four" requirement.

## Course Choice Menu Example

Choose five of the following courses:
ANTH 212 - Cultural Anthropology (3)
ANTH 221 - Physical Anthropology (3)
ANTH 270 - Urban Anthropology (3)
ECON 201 - Principles of Macroeconomics (3)
ECON 202 - Principles of Microeconomics (3)
GEOG 101 - Introduction to Geography (3)
-HIS 120 - American History until 1877 (3)
-HIS 121 - American History since 1877 (3)
HIS 201 - Ancient World History (3)
-HIS 202 - Medieval World History (3)
PS 221 - Legislative Process (3)
PS 272 - International Relations (3)
PSYCH 101 - General Psychology (3)

- SOC 101 - Introduction to Sociology (3)

Possibility \#1

| HIS | PS | ECON | PSYCH | GEOG | SOC | ANTH |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - | - | - | - | - | 3 | 9 |
| Possibility \#2 |  |  |  |  |  |  |
| HIS | PS | ECON | PSYCH | GEOG | SOC | ANTH |
| - | - | 3 | - | 3 | 3 | 3 |


| HIS | PS | ECON | PSYCH | GEOG | SOC | ANTH |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 12 | - | - | - | - | - | - |

## Possibility \#4

| HIS PS ECON PSYCH GEOG SOC ANTH <br> 6 6 - - - - -Possibility \#5 <br> HIS <br> 3 |
| :--- |

How do analysts evaluate courses taught with a religious perspective? Courses offering religious perspectives do not receive credit in the evaluation of this standard. ${ }^{7}$ This includes science coursework that explicitly endorses religion or pseudo-scientific principles such as creationism or intelligent design, literature courses that entail religious study of the Bible (as opposed to analysis of the Bible as literature), and history courses that focus exclusively on the establishment or development of religions.

Coursework evaluation at the undergraduate level is facilitated by the specificity with which most secondary teacher preparation programs outline course requirements in catalogs. In graduate programs, because this specificity is less common, analysts determine if the catalog, admissions documents (such as applications and transcript review forms) or other publicly available materials show a clear institutional commitment to ensuring that graduate high school teacher candidates meet the same requirements as outlined above, with explicit mention of acceptable undergraduate majors and/or minors and an indication of the potential for imposition of remedial coursework requirements. Graduate programs may also meet this standard by requiring candidates to complete 15 SCHs (the equivalent of a minor) of graduate-level content coursework, which ensures candidates have an understanding of higher-level concepts relevant to the candidates' area of certification. It is important to note that at the graduate level, the program may offer only a single secondary education major with multiple certifications offered within that major. In such cases, identification focuses on the possible certification options.

[^6]
## Overall program rating

The final program rating for an undergraduate or graduate secondary program on this standard is based on the proportion of the four pathways offered by the program for which content preparation is determined to be adequate either by licensure tests at the state level or coursework evaluation at the program levels.

Information on content preparation is generally accessible in publicly available materials. If after an exhaustive search of IHE catalogs and websites we find no public mention of expectations for content preparation, we presume that none exists and score accordingly. With the exception of 18 programs that did not specify coursework requirements for at least one major, all high school programs in the sample could be evaluated on this standard.

Common misconceptions about how analysts evaluate the Common Core High School Content Standard:

- Because all licensing tests required for certification adequately evaluate content knowledge, coursework preparation is not relevant for certifications for which licensing tests are mandatory. Licensing tests serve as an adequate measure of content knowledge only when all possible teaching assignments allowed under the certification are tested with independent cut-scores, the cut-scores are set at a sufficiently high level to ensure rigor, and the test is required for initial licensure.
- Preparation in any of the social sciences fields is interchangeable. Except for single-subject certifications in the social sciences with matching teaching assignments (e.g., a certification in sociology that only allows for a sociology teaching assignment), we consider history, political science/government, economics, and psychology coursework relevant for evaluation under this standard, not coursework in fields such as anthropology, geography or sociology.
- Recommended coursework can receive credit. Teacher preparation programs must require coursework to ensure that teacher candidates receive the necessary background knowledge on subjects they will teach.


## Examples of what does and does not satisfy the standard's indicators

Determining the adequacy of content preparation on the basis of licensure tests (Indicator 8.1)

The state requires a single-subject licensing test with a rigorous cut-score for each single-subject certification with a matching teaching assignment.

The state requires a single-subject licensing test for all possible teaching assignments allowed by each multiple-subject certification.

Tests considered for this indicator include: Praxis II, AEPA, CSET, FTCE, GACE, ICTS, MTEL, MTTC, MTLE, NMTA, NYSTCE, CEOE, ORELA, TEXES, and WEST-E.

Single-subject or multiple-subject certifications require general or multiple-subject licensing tests.

Single-subject or multiple-subject certifications do not require licensing tests.
$\checkmark$ - acceptable
(coursework covers content)
$\boldsymbol{V}$ - not acceptable
(coursework focuses on methods of instruction, not content)

In Mathematics:
STAT 317 - Statistics for Engineers and Scientists.
Calculus-based probability and statistics: distribution theory, estimation, hypothesis testing, applications to engineering and the sciences.

MAT 305 - The History of Mathematics. Mathematical thought from ancient to modern times, major theorems of mathematics, problems of different periods and the context in which mathematics developed.

In Mathematics:
MAE 4634 - Programs in Teaching of Mathematics.
A consideration of special programs, strategies and materials. Emphasis on individual needs of students.

MTE 428 - Methods of Teaching Mathematics in Secondary School.
Examines secondary school curricular material and analyzes instructional devices. Teaching strategies, evaluative techniques, diagnosis, and remediation and problem solving.

## In English:

EDUC 405 - Literacy in the Content Area.
The course shows teachers how to apply reading methodology to subject-area learning. It takes a balanced approach, providing a realistic and practical treatment of reading and methodology issues, theory and research.

ENG 413 - Using Literature in Intermediate and Adolescent Classrooms.
This course takes a practical approach to the study and selection of literature for use in teaching intermediate and adolescent students. Various educational methods that integrate children's literature into the intermediate and adolescent curriculum are reviewed.

In the Sciences:
BIO 300 - Ecology and Population Biology.
Nutrient cycling and energy flow, populations, population genetics, use and construction of phylogenies, communities and biodiversity. (Counted for Biology)

## GEOL 211 - Historical Geology.

This course covers the diversity of life, catastrophic extinctions and the effect of biologic change on the environment. The basic principles of stratigraphy, use of stable isotopes to interpret sedimentary environments and the stratigraphic and tectonic history of the earth are also explored. (Counted for Earth and Space Sciences)

## In the Sciences:

ED 542 - Science Pedagogy in the Secondary
School. Through campus and school-based experiences, students will learn how to engage young people in learning about science and how to make decisions about planning instruction and developing assessment based on a sound knowledge base for applying content, materials, and methods (including educational technology) appropriate for high school students.

## BIOL 440 - Methods of Teaching Science.

Methods, philosophy and structure of science; application in teaching middle and secondary school science courses.

In the Social Sciences:

## PS 441 - The Legislative Process.

A study of Congress and the state legislatures, covering the legislative power structure, legislative committees, the selection of legislators and the roles they play, decision making, and the relationship between the legislative and executive branches. (Counted for Political Science)

## AAS 587 - U.S. Civil Rights Movement since 1930.

This course will focus on the struggle for AfricanAmerican equality in the United States during the mid-20th century. It will examine key civil rights issues, events, leaders and organizations on both the local and national levels. Using historical documents and documentary film presentations, this course will discuss the status of race relations in America over the past 50 years. (Counted for History)

## PSYC 411 - Cognitive Psychology.

Research and theories on sensory memory, attention, short-term and working memory, human learning and forgetting, imagery, long. term memory, speech perception, reading, language, thinking and problem solving, and decision making. (Counted for Psychology)

In the Social Sciences:

## EDU 391 - Initial Clinical Experience in Social Studies.

This initial clinical experience is designed to provide undergraduates in secondary education programs with school-based classroom experiences that prepare them to effectively student teach at the secondary school level. Students are placed in a secondary school setting under the guidance of a school-based teacher and a college-based supervisor.

## PSY 336 - Education Psychology.

This course is designed for teachers and individuals who are concerned with directing and influencing personality development and learning in human beings. It is hoped that they will be able to apply the principles of psychology to education and the teaching-learning process.

HIS 473 - Principles and Practices of Teaching
History. Development of a philosophy for teaching history in the secondary schools. Current trends and issues curriculum programs, teaching strategies, classroom procedures, and materials will be examined and developed. Field experience is required.

## Considerations for coursework evaluation of majors in mathematics, English, the sciences and the social sciences pathways (Indicators 8.2-8.5)

## Content Preparation

## $\checkmark$ • fully satisfies the indicator

For all certifications that are not adequately tested, the program requires undergraduate coursework entailing:

For single-subject certifications:
> a 30 SCHs content-area major.
For multiple-subject certifications, one of:
> two 15 SCHs minors in the possible assignment areas.
$>$ a total of 50 SCHs in the sciences or social sciences.
> a program that may require graduate coursework entailing a total of 15 SCHs . (For the sciences and social sciences, this need not be limited to a single content area.)

## $x$ - does not satisfy the indicator

The program fails to specify undergraduate coursework requirements.

The program specifies that candidates for single-subject certification may be admitted with fewer than 30 SCHs in the relevant content area.

The program specifies that candidates for multiple-subject certification may be admitted with only a major, or a major and insufficient credits in a second content area.


[^0]:    ${ }^{1}$ For information on each state's form of secondary certification (middle school, high school, and general secondary), refer to the Teacher Licensing Structure Infographics. For purposes of evaluation, "high school certification" refers to certification for the higher level secondary grades when middle school certification is offered in a state; in all other cases, "high school certification" refers to certification for the entire secondary grade span.

[^1]:    ${ }^{2}$ The term "pathway" is one used by NCTQ to provide a useful standard term for a grouping of certifications in a subject area.

[^2]:    ${ }^{3}$ In the absence of technical report data that validate the passing rates for each licensure test, we will presume that cut-scores are set too low to verify content knowledge.
    ${ }^{4}$ For example, physical science certification must require candidates to pass both a chemistry and a physics test. The single test for physical science is insufficient because a candidate could score poorly on either the chemistry or physics section and still teach both subjects. If, however, a social science or general science certification only allows for assignment to introductory general science or social studies courses, the general content knowledge test is considered adequate.

[^3]:    ${ }^{5}$ With the aim to ensure that all majors provide adequate preparation, when a program offers more than five majors, the ones most likely to pass are excluded from evaluation. The "Order of Evaluation of Majors in the Social Sciences Pathway" table provides the hierarchy of analysis. We make the assumption that if the five weakest majors are satisfactory, then all majors will provide adequate preparation.

[^4]:    * Unassigned credits are those that are required in the social sciences but are not specified. An example from Troy University: Select at least 24 hours of additional 3,000/4,000-level courses from anthropology, economics, geography, history, political science, psychology or sociology (six hours may be used from ECO 2251, ECO 2252, GEO 2210, ANT 2200, POL 2260 [World Politics] or SOC 2230) in at least three disciplines.

[^5]:    ${ }^{6}$ With the aim to ensure that all majors provide adequate preparation, when more than five majors are offered by a program, the ones most likely to pass are excluded from evaluation. The "Order of Evaluation of Majors in the Sciences Pathway" table provides the hierarchy of analysis. We make the assumption that if the five weakest majors are satisfactory, then all majors will provide adequate preparation.

[^6]:    7 If the programs offering these courses only prepared educators to teach in private religious K-12 schools, such coursework would be appropriate. All programs in the Review, however, are publicly approved to prepare public school teachers.

