Wildlife and Fisheries Resources, B.S.

Degree Offered

• Bachelor of Science

Nature of the Program

The wildlife and fisheries resources curriculum prepares students for professional positions as wildlife and fish biologists, natural resources conservation officers, wildlife and fisheries managers and planners, wildlife or fisheries communication specialists, wildlife and fisheries toxicologists, and environmental consultants. The program is unique in the region as our graduates are fully trained in both the wildlife and fisheries fields. The curriculum provides a solid basic background in biology, ecology, and natural resource management. Students fulfilling this program will select a concentration in wildlife or fisheries (or both) to meet the requirements for professional certification as either a wildlife biologist (certified through The Wildlife Society) or fisheries biologist (certified through The American Fisheries Society). A careful selection of restricted electives enables students to specialize in related natural resource areas and to have the opportunity for widening employment in other environmental fields. Other options can be tailored to your objectives. Students will be able to consult with their advisor in the selection of courses from a group of restricted electives to develop their area of emphasis.

Special Opportunities

Students will have special opportunities to enhance their education in the WVU Wildlife and Fisheries Resources Program. The Program has student chapters of The American Fisheries Society, The Wildlife Society, and the Society for Conservation Biology. Student participation in these organizations leads to opportunities for further field experience with state and federal agency biologists, graduate students, and faculty. A USGS Fish and Wildlife Cooperative Research Unit is also housed within our program. This unit provides three additional faculty members conducting extensive research programs all around the country. In addition, the WVDNR provides a liaison biologist to the Unit that provides a direct link from students to the state’s natural resources agency. Undergraduates benefit from the personnel at the Unit and also teach in our program.

All of our faculty are involved with graduate training. This active research program provides invaluable classroom experiences as faculty remain up-to-date with all the latest studies and methods in the field. Students also benefit through volunteer experiences and summer employment opportunities for students working on research projects.

In the Wildlife and Fisheries Resources Program, you will be advised by caring faculty members who understand what it will take to be successful in this field. All students are required to take a Professional Experience course (internship) as part of the curriculum, but we encourage students to get as much additional experience working with professionals throughout their time in the program. The curriculum also includes a capstone class that allows students to showcase their learning through management plans and research projects.

Career opportunities in wildlife and fisheries are expanding. Even so, we encourage our students to consider going for advanced degrees when they finish here. Such qualified seniors find that assistantships are readily available due to the solid course background, training, and experience they received while here at WVU.

Admissions

• First-Time Freshman are admitted directly into wildlife and fisheries resources major.
• Students transferring from another major within WVU are directly admitted to the wildlife and fisheries resources major if they are in good academic standing (2.00 overall GPA).
• Students transferring from another institution are directly admitted to the wildlife and fisheries resources major if they are in good academic standing (2.00 overall GPA).

ADMISSION REQUIREMENTS 2022-2023

The Admission Requirements above will be the same for the 2022-2023 Academic Year.

Major Code: 0708

Click here to view the Suggested Plan of Study (p. 3)

General Education Foundations

Please use this link to view a list of courses that meet each GEF requirement. (http://registrar.wvu.edu/gef/)

NOTE: Some major requirements will fulfill specific GEF requirements. Please see the curriculum requirements listed below for details on which GEFs you will need to select.
### General Education Foundations

<table>
<thead>
<tr>
<th>Category</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1 - Composition &amp; Rhetoric</td>
<td>ENGL 101 Introduction to Composition and Rhetoric and Composition, Rhetoric, and Research</td>
</tr>
<tr>
<td></td>
<td>ENGL 102 or ENGL 103 Accelerated Academic Writing</td>
</tr>
<tr>
<td>F2A/F2B - Science &amp; Technology</td>
<td>ENGL 101 &amp; ENGL 102 Introduction to Composition and Rhetoric and Composition, Rhetoric, and Research</td>
</tr>
<tr>
<td></td>
<td>ENGL 103 or ENGL 103 Accelerated Academic Writing</td>
</tr>
<tr>
<td>F3 - Math &amp; Quantitative Reasoning</td>
<td>F2A/F2B - Science &amp; Technology</td>
</tr>
<tr>
<td>F4 - Society &amp; Connections</td>
<td>F2A/F2B - Science &amp; Technology</td>
</tr>
<tr>
<td>F5 - Human Inquiry &amp; the Past</td>
<td>F2A/F2B - Science &amp; Technology</td>
</tr>
<tr>
<td>F6 - The Arts &amp; Creativity</td>
<td>F2A/F2B - Science &amp; Technology</td>
</tr>
<tr>
<td>F7 - Global Studies &amp; Diversity</td>
<td>F2A/F2B - Science &amp; Technology</td>
</tr>
<tr>
<td>F8 - Focus (may be satisfied by completion of a minor, double major, or dual degree)</td>
<td>F2A/F2B - Science &amp; Technology</td>
</tr>
</tbody>
</table>

**Total Hours:** 31-37

Please note that not all of the GEF courses are offered at all campuses. Students should consult with their advisor or academic department regarding the GEF course offerings available at their campus.

### Curriculum Requirements

**University Requirements**
- General Education Foundations (GEF) 1, 2, 3, 4, 5, 6, 7, and 8 (31-37 Credits)
- Outstanding GEF Requirements 1 and 6
- ANRD 191 First-Year Seminar

**Total Hours:** 10

**Wildlife and Fisheries Resources Program Requirements**

A minimum of C- must be obtained in all Wildlife and Fisheries Resources Program Requirements.

Select one of the following sets:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 101 &amp; BIOL 103</td>
<td>General Biology and General Biology Laboratory</td>
</tr>
<tr>
<td>BIOL 102 &amp; BIOL 104</td>
<td>General Biology and General Biology Laboratory</td>
</tr>
<tr>
<td>OR</td>
<td>Principles of Biology and Principles of Biology Laboratory</td>
</tr>
<tr>
<td>BIOL 115 &amp; BIOL 116</td>
<td>Introductory Physiology and Introductory Physiology Laboratory</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
</tr>
<tr>
<td>CHEM 111 &amp; 111L</td>
<td>Survey of Chemistry 1 and Survey of Chemistry 1 - Laboratory</td>
</tr>
<tr>
<td>CHEM 115 &amp; 115L</td>
<td>Fundamentals of Chemistry and Fundamentals of Chemistry 1 - Laboratory</td>
</tr>
<tr>
<td>MATH 124</td>
<td>Algebra with Applications (GEF 3)</td>
</tr>
<tr>
<td>STAT 211</td>
<td>Elementary Statistical Inference</td>
</tr>
<tr>
<td>WVUE 270</td>
<td>Effective Public Speaking</td>
</tr>
<tr>
<td>AGRN 202</td>
<td>Principles of Soil Science</td>
</tr>
<tr>
<td>AGRN 203</td>
<td>Principles of Soil Science Laboratory</td>
</tr>
<tr>
<td>FOR 205</td>
<td>Dendrology</td>
</tr>
</tbody>
</table>

Select one of the following:

**Total Hours:** 120
Wildlife and Fisheries Resources Major Requirements

A minimum of C- must be obtained in all Wildlife and Fisheries Resources Major Requirements.

WMAN 100  The Tradition of Hunting  3
WMAN 150  Principles of Conservation Ecology  3
WMAN 175  Introduction to Wildlife and Fisheries  3
WMAN 205  Wildlife-Fisheries Camp  3
WMAN 224  Vertebrate Natural History  3
WMAN 300  Wildlife and Fisheries Techniques (fulfills Writing and Communication skills requirement)  4
WMAN 313  Wildlife Ecosystem Ecology  4
WMAN 330  Conservation Genetics  3
WMAN 421  Renewable Resources Policy and Governance  3
Select one of the following:  3
WMAN 425  Mammalogy
WMAN 426  Ornithology
WMAN 445  Introduction to Fisheries Management  3
WMAN 446  Freshwater Ecology  4
WMAN 450  Advanced Wildlife and Fisheries Management (Capstone; fulfills Writing and Communication skills requirement)  4
WMAN 491  Professional Field Experience  3

Area of Emphasis  12

Restricted Electives  15

Any 100-400 level course in Biology (BIOL), Geology (GEOL), Forestry (FOR), Forest Management (FMAN), Wildlife and Fisheries (WMAN), or Resource Management (RESM) agreed upon between the student and the advisor.

A minimum of three credits must be at the upper-division.

Total Hours  73

* Students in the Wildlife Sciences Area of Emphasis must complete WMAN 293 (Wildlife Silviculture) as a part of their Restricted Electives.

SUGGESTED PLAN OF STUDY

First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANRD 191</td>
<td>1</td>
<td>WMAN 150 (GEF 7)</td>
<td>3 WMAN 205</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENGL 101 (GEF 1)</td>
<td>3</td>
<td>Select one of the following:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMAN 100 (GEF 5)</td>
<td>3</td>
<td>BIOL 102 &amp; BIOL 104</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMAN 175 (GEF 8)</td>
<td>3</td>
<td>BIOL 117 &amp; BIOL 118</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one of the following (GEF 2):</td>
<td>4</td>
<td>GEF 6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Wildlife and Fisheries Resources, B.S.

<table>
<thead>
<tr>
<th>BIOL 101 &amp; BIOL 103</th>
<th>Area of Emphasis or Restricted Elective 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 115 &amp; BIOL 106</td>
<td>MATH 124 (GEF 3) 3</td>
</tr>
<tr>
<td></td>
<td>17 13 3</td>
</tr>
</tbody>
</table>

#### Second Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select one of the</td>
<td></td>
<td>4 ENGL 102 (GEF 1)</td>
<td>3 WMAN 491</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>following (GEF 8):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 111 &amp; 111L</td>
<td></td>
<td>FOR 240</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 115 &amp; 115L</td>
<td></td>
<td>WVUE 270 (GEF 4)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOR 205</td>
<td>3</td>
<td>AGRN 202</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 211 (GEF 8)</td>
<td>3</td>
<td>Area of Emphasis or</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMAN 224</td>
<td>3</td>
<td>Restricted Elective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>16 2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Third Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMAN 300</td>
<td>4</td>
<td>WMAN 313</td>
<td>4</td>
</tr>
<tr>
<td>WMAN 421</td>
<td>3</td>
<td>WMAN 330</td>
<td>3</td>
</tr>
<tr>
<td>WMAN 491</td>
<td>1</td>
<td>Select one of the</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>following:</td>
<td></td>
</tr>
<tr>
<td>Area of Emphasis or</td>
<td>3</td>
<td>WMAN 425</td>
<td>3</td>
</tr>
<tr>
<td>Restricted Elective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area of Emphasis or</td>
<td>3</td>
<td>WMAN 426</td>
<td>3</td>
</tr>
<tr>
<td>Restricted Elective</td>
<td></td>
<td>Area of Emphasis or</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Restricted Elective</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

#### Fourth Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMAN 445</td>
<td>3</td>
<td>WMAN 446</td>
<td>4</td>
</tr>
<tr>
<td>RESM 440</td>
<td>3</td>
<td>WMAN 450</td>
<td>4</td>
</tr>
<tr>
<td>Policy &amp; Administration Course</td>
<td>3</td>
<td>Area of Emphasis or Restricted Elective</td>
<td>3</td>
</tr>
<tr>
<td>Area of Emphasis or</td>
<td>3</td>
<td>Area of Emphasis or</td>
<td></td>
</tr>
<tr>
<td>Restricted Elective</td>
<td></td>
<td>Restricted Elective</td>
<td></td>
</tr>
<tr>
<td>Area of Emphasis or</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restricted Elective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

Total credit hours: 120

### Areas of Emphasis

- Fisheries Sciences
- Wildlife Sciences

**FISHERIES SCIENCES AREA OF EMPHASIS REQUIREMENTS**

*A minimum of C- must be obtained in all courses required for the area of emphasis.

Physical Sciences: select two of the following:

- CHEM 112 Survey of Chemistry 2
- CHEM 112L and Survey of Chemistry 2 - Laboratory
### Wildlife and Fisheries Resources, B.S.

**CHEM 116**  
Fundamentals of Chemistry  
& **116L**  
and Fundamentals of Chemistry 2 - Laboratory

**CHEM 231**  
Organic Chemistry: Brief Course  
& **231L**  
and Organic Chemistry: Brief Course - Laboratory

**CHEM 233**  
Organic Chemistry  
& **CHEM 235**  
and Organic Chemistry Laboratory

**GEOL 101**  
Planet Earth  
& **GEOL 102**  
and Planet Earth Laboratory

**GEOL 203**  
Physical Oceanography

**PHYS 101**  
Introductory Physics

**AGRN 225**  
Advanced Soil Judging

**AGRN 410**  
Soil Fertility

**AGRN 415**  
Soil Survey and Land Use

**AGRN 417**  
Soil Genesis and Classification

**AGRN 420**  
Soil Microbiology

**AGRN 425**  
Environmental Soil Management

**AGRN 455**  
Reclamation of Disturbed Soils

Fisheries--select one of the following:  

**BIOL 341**  
Ichthyology

**WMAN 314**  
Marine Ecology

**WMAN 449**  
Stream Ecosystem Assessment

**WMAN 550**  
Fish Ecology

Quantitative Sciences--select one of the following:  

**MATH 150**  
Applied Calculus

**STAT 312**  
Intermediate Statistical Methods

**STAT 511**  
Statistical Methods 1

**Total Hours**  
12

### WILDLIFE SCIENCES AREA OF EMPHASIS REQUIREMENTS

*A minimum of C- must be obtained in all courses required for the area of emphasis.

Physical Sciences: select one of the following:  

**CHEM 112**  
Survey of Chemistry 2  
& **112L**  
and Survey of Chemistry 2 - Laboratory

**CHEM 116**  
Fundamentals of Chemistry  
& **116L**  
and Fundamentals of Chemistry 2 - Laboratory

**CHEM 231**  
Organic Chemistry: Brief Course  
& **231L**  
and Organic Chemistry: Brief Course - Laboratory

**CHEM 233**  
Organic Chemistry  
& **CHEM 235**  
and Organic Chemistry Laboratory

**GEOL 101**  
Planet Earth  
& **GEOL 102**  
and Planet Earth Laboratory

**GEOL 203**  
Physical Oceanography

**GEOL 321**  
Geomorphology

**PHYS 101**  
Introductory Physics

**AGRN 225**  
Advanced Soil Judging

**AGRN 410**  
Soil Fertility

**AGRN 415**  
Soil Survey and Land Use

**AGRN 417**  
Soil Genesis and Classification

**AGRN 420**  
Soil Microbiology

**AGRN 425**  
Environmental Soil Management

**AGRN 455**  
Reclamation of Disturbed Soils

Botany--select one of the following:  

**3**
**Major Learning Outcomes**

**WILDLIFE AND FISHERIES RESOURCES**

Upon the successful completion of a Wildlife and Fisheries Resources degree students will be able to:

- Comprehend the historical importance of wildlife and fisheries management, and the role contemporary agencies play in wildlife and fisheries management in the United States.
- Demonstrate expertise on the life-history characteristics of game and non-game wildlife and fishes.
- Identify and classify using common and Latin names West Virginia trees, plants, reptiles, mammals and fishes by sight and birds and amphibians by sight and sound.
- Explain and employ commonly used wildlife and fisheries management principles, methods, and techniques.
- Define, explain, and apply knowledge regarding biological and chemical processes, population ecology and population dynamics, community and ecosystem ecology, aquatic ecology (lakes, streams, and rivers), terrestrial ecology (forests and grasslands) and wetland ecology in relation to wildlife and fisheries management and research applications.
- Demonstrate laboratory, computer and quantitative skills relevant to wildlife and fisheries science.
- Critically evaluate peer-reviewed literature and apply research findings to the conservation and management of wildlife and fisheries resources.
- Conduct a research project or compose a management plan focused on wildlife or fisheries that includes project design, collecting, analyzing and interpreting data, and reporting results as a research paper or management plan in appropriate scientific style, and presenting the project to their peers.

**WMAN 100. The Tradition of Hunting. 3 Hours.**
Introduction to the cultural and spiritual role of hunting; use of hunting as a wildlife management tool; and its economic value in wildlife conservation programs. Includes discussions on gun control, anti-hunting, and animal rights.

**WMAN 150. Principles of Conservation Ecology. 3 Hours.**
Overview of the science of conservation ecology with emphasis on the concepts of biological diversity, extension, habitat loss and fragmentation, establishment of protected areas, endangered species, and establishment and preservation of new populations.

**WMAN 160. Ecology of Invading Species. 3 Hours.**
Survey of invasive/exotic plant and animal species and their effects on native ecosystems, including the breakdown of natural barriers to invasion by the increase of world commerce which unifies widely dispersed resources.

**WMAN 175. Introduction to Wildlife and Fisheries. 3 Hours.**
Introduction to the study and management of wildlife and fisheries resources of the Appalachians. Includes an overview of resource management history, career opportunities, natural resources policy, and the basic life of birds, mammals, and fishes.

**WMAN 191. First-Year Seminar. 1-3 Hours.**
Engages students in active learning strategies that enable effective transition to college life at WVU. Students will explore school, college and university programs, policies and services relevant to academic success. Provides active learning activities that enable effective transition to the academic environment. Students examine school, college and university programs, policies and services.

**WMAN 200. Restoration Ecology. 3 Hours.**
Principles and practice of restoring natural ecosystem function, structure, and integrity.
WMAN 205. Wildlife-Fisheries Camp. 3 Hours.
A course in field ecology and wildlife/fisheries sampling techniques. Designed to introduce the beginning wildlife conservation professional to the science of collecting data on wildlife and fish populations in their natural habitats.

WMAN 221. Interpretive Bird Study. 3 Hours.
PR: BIOL 117 or consent. Intensive field studies in recognition through sight, song, and behavioral patterns of birds, and their ecology in the Central Appalachians. (2 hr. lec, 2 hr. lab.).

WMAN 224. Vertebrate Natural History. 3 Hours.
PR: BIOL 117 or consent. Relationships of fish, amphibians, and reptiles to the forest, with emphasis on the ecology, taxonomy, evolution, natural history, and field identification of these groups. Laboratory emphasizes natural history and anatomy of fish, amphibians, and reptiles.

WMAN 226. Waterfowl Ecology. 3 Hours.
PR: BIOL 115 or WMAN 224 or consent. Study of key coastal species and their interactions. Self-paced lectures and exercises culminating with one-week capstone trip to Atlantic coast for hands-on study of invertebrates, coastal fishes and birds, and marine ecology.

WMAN 230. Wildlife and Fisheries Techniques. 4 Hours.
PR: STAT 211 and (FOR 240 or CS 101) and PR or CONC: RESM 440 with a minimum grade of C- in each. Field and laboratory techniques for the scientific management and evaluation of wildlife and fisheries resources.

WMAN 233. Wildlife Ecosystem Ecology. 4 Hours.
PR: ((BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104) or (BIOL 115 and BIOL 117)) and (MATH 124 or MATH 126 or MATH 128 or MATH 129 or MATH 150 or MATH 153 or MATH 154 or MATH 155). Basic principles of ecosystem, community, and population ecology. Emphasizing structure, function, succession, physiological ecology, population growth and regulation, and systems modeling.

WMAN 234. Forest Wildlife Management. 3 Hours.
PR: Wildlife major or consent; WMAN 313 and FOR 205. Field and laboratory techniques necessary in management and study of wildlife; collection of field data, mapping, censusing, habitat evaluation, wetland delineation, use of literature and scientific writing.

WMAN 241. Renewable Resources Policy and Governance. 3 Hours.
PR: Consent. Forest, wildlife, fisheries, and recreation resource policies of the world, with an emphasis on the U.S. important federal and state laws; governance of public and private lands and renewable natural resources. (Crosslisted with FOR 421.).

WMAN 242. Ornithology. 3 Hours.
PR: BIOL 115 or WMAN 224 or consent. Basic principles of management of fishery resources, with an emphasis on freshwater stocks. Includes current environmental and management issues, concepts, and methods used in management of commercial and recreational fisheries.

WMAN 246. Freshwater Ecology. 4 Hours.
PR: (BIOL 101 and BIOL 102 and BIOL 103 and BIOL 104) or BIOL 115 or WMAN 224 or consent. Physical, chemical, and biological characteristics of inland waters with emphasis on the structure and function of stream ecosystems.

WMAN 249. Stream Ecosystem Assessment. 3 Hours.
Self-paced lectures and exercises culminating in a one-week trip to the mountains of West Virginia for hands-on study of stream fishes, invertebrates, water and habitat quality, geomorphology, and ecology.
WMAN 450. Advanced Wildlife and Fisheries Management. 4 Hours.
PR: WMAN 300. Principles and practices of wildlife and fisheries habitat and species management.

WMAN 490. Teaching Practicum. 1-3 Hours.
PR: Consent. Teaching practice as a tutor or assistant.

WMAN 491. Professional Field Experience. 1-18 Hours.
PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

WMAN 492. Directed Study. 1-3 Hours.
Directed study, reading and/or research.

WMAN 493. Special Topics. 1-6 Hours.
PR: Consent. Investigation of topics not covered in regularly scheduled courses.

WMAN 494. Seminar. 1-3 Hours.
PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

WMAN 495. Independent Study. 1-6 Hours.
Faculty supervised study of topics not available through regular course offerings.

WMAN 496. Senior Thesis. 1-3 Hours.
PR: Consent.

WMAN 498. Honors. 1-3 Hours.
PR: Students in the Honors Program and consent by the honors director. Independent reading, study or research.