**Department of Biology – Application for SpeakWrite Program Certification**

1. We have a communication-related programmatic learning goal:

   **Students will be able to communicate to fellow scientists and also non-scientists in both written and oral forms.**

2. Students in the Biology BA must take 6 required courses and 4-5 upper division electives (including 1 lab). Students in the Biology BS must take the same 6 required courses and 7 upper-division electives (including 2 labs).

   *Four of the six required courses for both degrees are in the process of SpeakWrite approval:*

   - Biology 115 – Principles of Biology - approved
   - Biology 117 – Introductory Physiology - approved
   - Biology 219 – The Living Cell - approved
   - Biology 221 – Ecology and Evolution - not SpeakWrite
   - Biology 327 – Professional Development - not SpeakWrite
   - Biology capstone (Biology 320, 321 or 486) – approved.

   Because the above courses are required of all biology majors, students on the BA track will need an additional 2 SpeakWrite Courses (for a total of 6/11 courses in the major) and students on the BS track will need an additional 3 SpeakWrite Courses (for a total of 7/13).

   *Approximately 25/60 of the current biology department offerings have been submitted as SpeakWrite courses (see lists on subsequent pages). Probabilistically, students have a 61% chance of randomly choosing at least 3 SpeakWrite Courses from this list.*

   Many of our students are completing their Biology degree with an Area of Emphasis. Each of the Areas of Emphasis below are expected to have at least 50% of the possible courses designated as SpeakWrite (courses in Red below are SpeakWrite).

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<tr>
<th>Course List</th>
<th>Genomics</th>
<th>Neuroscience</th>
<th>Ecology/Env. Bio</th>
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<tr>
<td>Req.</td>
<td>Biology 420</td>
<td>Biology 348</td>
<td>Biology 302</td>
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<td>Biology 430</td>
<td>Biology 349</td>
<td>Biology 461</td>
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<td>Elective</td>
<td>Biology 324/325</td>
<td>Biology 339</td>
<td>Biology 318</td>
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<td>Biology 415</td>
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<td>Biology 423</td>
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<td>Biology 456</td>
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<td>Elective</td>
<td>Biology 461</td>
<td>Neuro. Diseases</td>
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<td>Elective</td>
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3. The learning goal ("students will be able to communicate to fellow scientists and also non-scientists in both written and oral forms") will be assessed annually. We annually assess student writing and oral communication skills via our capstone course. Each capstone course option requires students to both write and present their capstone research; therefore we expect that all students will meet a minimum written/oral component at the end of this experience. Furthermore, we will discuss how written and oral communication skills are assessed at a faculty meeting each spring. We will work to assure consistency among the evaluation of communication skills in upper-level courses, identify challenges in teaching and assessing communication skills, and apprise faculty of the SpeakWrite tools available and encourage the faculty to use them.

Courses approved for SpeakWrite (23 courses to count toward the major electives)

- Biology 298A – Honors add-on to Biology 115
- Biology 298B – Honors add-on to Biology 219
- Biology 315 – Communicating Natural Science
- Biology 318 – Writing Appalachian Ecology
- Biology 339 – Animal Communication
- Biology 350 – Plant Physiology
- Biology 351 – Plant Diversity
- Biology 352 – Plant Anatomy and Development
- Biology 363 – Plant Geography
- Biology 365 – Conservation Ecology
- Biology 409 – Biochemical Basis of Therapeutics
- Biology 410 – Cell and Molecular Biology Methods
- Biology 411 – Introduction to Recombinant DNA - Lab
- Biology 415 – Epigenetics
- Biology 418 – Medical Genetics
- Biology 420 – Genomics
- Biology 422 – Current Topics in Genome Biology
- Biology 426 – Molecular Biology of Cancer
- Biology 439 – Neuroethology
- Biology 453 – Molecular Basis of Disease
- Biology 455 – Evolution of Infectious Diseases
- Biology 461 – Principles of Evolution
- Biology 478 – Sensory Neural Systems and Behavior
- Biology 479 – Topics in Neuroscience

Courses not yet submitted to faculty senate, but expected to be SpeakWrite (3 courses)

- Biology XXX – Neurobiological Diseases
- Biology XXX – Systems Biology
- Biology XXX – Molecular Microbiology - Lab
Courses actively taught but not SpeakWrite  (35 courses)

Biology 302 – Biometry
Biology 310 – Advanced Cellular/Molecular Biology
Biology 311 – Advanced Cellular/Molecular Biology Lab
Biology 312 – Virology
Biology 313 – Molecular Basis of Cell Growth
Biology 316 – Developmental Biology
Biology 324 – Molecular Genetics
Biology 325 – Molecular Genetics Lab
Biology 337 – Physiological Psychology
Biology 338 – Behavioral Ecology
Biology 341 – Ichthyology
Biology 348 – Neuroscience I
Biology 349 – Neuroscience II
Biology 353 – Flora of West Virginia
Biology 361 – Plant Ecology
Biology 386 – Undergraduate Research
Biology 423 – Biochemistry of Nucleic Acids and Proteins
Biology 424 – Protein Structure and Function
Biology 425 – Developmental Genetics
Biology 430 – Bioinformatics
Biology 432 – Forensic Biology
Biology 436 – General Animal Physiology
Biology 438 – Animal Behavior
Biology 440 – Comparative Animal Anatomy
Biology 446 – Freshwater Ecology
Biology 450 – Plant Systematics
Biology 451 – Plant Development
Biology 454 – Immunology
Biology 456 – Microbial Symbiosis
Biology 463 – Global Ecology
Biology 464 – Population and Quantitative Genetics
Biology 476 – Computational Neuroscience
Biology 477 – Central Nervous System Evolution and Development
Biology 490 – Teaching Practicum
Biology 491 – Professional Field Experience

Courses in the catalog but not actively taught for the foreseeable future (10 courses)

Biology 301 – History of Biology
Biology 317 – Developmental Biology Laboratory
Biology 335 – Cell Physiology
Biology 336 – Vertebrate Embryology
Biology 340 – Invertebrate Zoology
Bioloty 348A-C – Marine Ecosystems Topics
Biology 413 – Molecular Endocrinology
Biology 414 – Molecular Endocrinology Lab
Biology 433 – Herpetology
Biology 441 – Vertebrate Microanatomy