# Quantitative Studies and Natural Science Electives (Rev. Fall 2021)

The courses listed below have been selected because they cover topics directly applicable to psychology. This is not true for all courses listed as NS on the course. Students may petition for a course not listed here, as long as the course in question addresses psychological concepts and/or research analysis related to the field. To petition, students must submit a copy of the course syllabus to psychologyDUS@duke.edu with the rationale for their request.

This list is updated periodically. Not every course is offered each semester; check the course schedule for current listings. Because additional NS courses in Psychology may count toward elective credits, courses cross-listed with Psychology are not listed here.

## African and African American Studies (AAAS)

| Course # | Course Title |
| --- | --- |
| 261D | Race, Genomics, and Society |

## Biology (BIOLOGY)

| Course # | Course Title | Course # | Course Title |
| --- | --- | --- | --- |
| 154 | AIDS & Other Emerging Diseases | 267D | Behavioral Ecology and the Evolution of Animal Behavior |
| 201L | Gateway to Biology: Molecular Biology | 311 | Systems Biology: An Introduction for the Quantitative Sciences |
| 202L | Gateway to Biology: Genetics and Evolution | | |
| 207 | Organismal Evolution | 322 | From Neurons to Brain |
| 209 | The Ecology of Human Health | 329D/L | Principles of Animal Physiology |
| 212 | General Microbiology | 330L | Comparative and Functional Anatomy of the Vertebrates |
| 215L | Introduction to Modeling in Mathematical Biology | 412S | Sensory Signal Transduction |
| | | 427S | Current Topics in Sensory Biology |
| 223 | Cellular and Molecular Neurobiology | 431S | Human Embryology: Reproductive Biology in the 21$^{st}$ Century |
| 250 | Population Genetics | | |
| 255 | Introduction to the Philosophy of Biology | 650 | Molecular Population Genetics |
| 261D | Race, Genomics, and Society | | |

## Biochemistry (BIOCHEM)

| Course # | Course Title | Course # | Course Title |
| --- | --- | --- | --- |
| 301 | Introductory Biochemistry I: Intermediary Metabolism | 658 | Structural Biochemistry I |
| | | 659 | Structural Biochemistry II |
| 302 | Introductory Biochemistry II | | |

## Biomedical Engineering (BME)

| Course # | Course Title | Course # | Course Title |
| --- | --- | --- | --- |
| 244L | Quantitative Physiology with Biostatistical Applications | 504 | Fundamentals of Electrical Stimulation of the Nervous System |
| 260L | Modeling Cellular and Molecular Systems | 511L | Intermediate Bioelectricity |
| 271 | Signals and Systems | 513 | Nonlinear Dynamics in Electrophysiology |
| 307 | Transport Phenomena in Biological Systems | 515 | Neural Prosthetic Systems |
| 354L | Introduction to Medical Instrumentation | 527 | Cell Mechanics and Mechanotransduction |
| 502 | Neural Signal Acquisition | 560 | Molecular Basis of Membrane Transport |
| 503 | Computational Neuroengineering | 566 | Transport Phenomena in Cells and Organs |

## Computer Science (COMPSCI)

| Course # | Course Title | Course # | Course Title |
| --- | --- | --- | --- |
| 101L | Introduction to Computer Science | 520 | Numerical Analysis |
| 201 | Data Structures and Algorithms | 527 | Introduction to Computer Vision |
| 216 | Everything Data | 528 | Introduction to Computational Science |
| 230 | Discrete Math for Computer Science | 532 | Design and Analysis of Algorithms |
| 260 | Introduction to Computational Genomics | 570 | Artificial Intelligence |
| 316 | Introduction to Database Systems | 571D | Machine Learning |
| 370D | Introduction to Artificial Intelligence | 662 | Computational Systems Biology |
| 516 | Data-Intensive Computing Systems | 663 | Algorithms in Structural Biology and Biophysics |

## Cultural Anthropology (CULANTH)

| Course # | Course Title |
| --- | --- |
| 261D | Race, Genomics, and Society |

## Engineering (EGR)

| Course # | Course Title |
|---|---|
| 103 | Computational Methods in Engineering |

## Evolutionary Anthropology (EVANTH)

| Course # | Course Title | Course# | Course Title |
|---|---|---|---|
| 101/D | Introduction to Evolutionary Anthropology | 285D | Human Health in Evolutionary Perspective |
| 212FS | Social Structures in an Evolutionary Framework | 330L | Human Anatomy and Physiology |
| | | 333L | The Human Body |
| 230 | Bodies of Evidence: Introduction to Forensic Anthropology | 341/D | Primate Sexuality |
| | | 363S | Evolution of Primate Social Cognition |
| 246 | Sociobiology | 546S | Primate Social Evolution |
| 253 | Primate Ecology | 560S | Primate Cognition |

## Global Health (GLHLTH)

| Course # | Course Title | Course # | Course Title |
|---|---|---|---|
| 154 | AIDS & Other Emerging Diseases | 641 | Non-Communicable Diseases in Low- & Middle-Income Countries: Trends, Causes & Prevention |
| 258D | Race, Genomics, and Society | | |
| 362 | Introduction to Epidemiology Focus on Global Health | | |

## Linguistics (LINGUIST)

| Course # | Course Title | Course # | Course Title |
|---|---|---|---|
| 115FS | Games and the Brain | 216S/FS | Neuroscience and Human Language |
| 123FS | When the Head's in Trouble: Language, Lesions, and Loss | 473S/AS | Neuroscience and Multilingualism |
| | | 501 | Cognitive and Neurolinguistics |

## Mathematics (MATH)

| Course # | Course Title | Course # | Course Title |
|---|---|---|---|
| 216/D | Linear Algebra and Differential Equations | 353 | Ordinary and Partial Differential Equations |
| 218/1/2 | Matrices and Vector Spaces | 403 | Advanced Linear Algebra |
| 221 | Linear Algebra and Applications | 573S | Modeling of Biological Systems |
| 342D | Statistics | | |

## Neurobiology (NEUROBIO)

| Course # | Course Title |
|---|---|
| 559 | The Biological Basis of Music |

## Neuroscience (NEUROSCI)

| Course # | Course Title | Course # | Course Title |
|---|---|---|---|
| 116S/FS | Neuroscience and Human Language | 322 | From Neurons to Brain |
| 123FS | When the Head's in Trouble: Language, Lesions and Loss | 350 | Pharmacology: Drug Actions and Reactions |
| | | 381LA | Sensory Physiology and Behavior of Marine Animals |
| 157FS | Games and the Brain | 385L | Integrative Neuroscience Laboratory |
| 202 | Medical Neuroscience | 427S | Current Topics in Sensory Biology |
| 223 | Cell and Molecular Neurobiology | 438AS | Neuroscience & Multilingualism |
| 242A | The Creative Brain: Literature, Arts, & Cognition | 439S | Neuroscience & Multilingualism |
| | | 501S | Cognitive and Neurolinguistics |
| 245A | Cultured Brain: Neuroscience of Perception and Action | 595 | Language, Music and Dementia: Neuroscience Approaches |

## Pharmacology (PHARM)

| Course # | Course Title | Course# | Course Title |
|---|---|---|---|
| 350 | Pharmacology: Drug Actions and Reactions | 370 | Pharmacogenomics and Personalized Medicine |

## Physical Education (PHYSEDU)

| Course # | Course Title | Course # | Course Title |
|---|---|---|---|
| 203 | Diet and Nutrition | 206 | Exercise Physiology |

## Psychology (PSY)

---Any NS course in Psychology---

## Public Policy (PUBPOL)

| Course # | Course Title | Course # | Course Title |
| --- | --- | --- | --- |
| 241 | Multi-Method Approaches to Social and Policy Research | 348 | Science and Policy of Obesity |

## Romance Studies (ROMST)

| Course # | Course Title |
| --- | --- |
| 242A | The Creative Brain: Literature, Arts & Cognition |

## Science & Society (SCISOC)

| 258D | Race, Genomics, and Society |
| --- | --- |

## Sociology (SOCIOL)

| Course # | Course Title | Course # | Course Title |
| --- | --- | --- | --- |
| 332 | Methods of Social Research | 333 | Quantitative Analysis of Sociological Data |

## Statistical Science (STA)

| Course # | Course Title | Course # | Course Title |
| --- | --- | --- | --- |
| 101/L | Data Analysis and Statistical Inference | 322 | Design of Surveys and Causal Studies |
| 102/L | Introductory Biostatistics | 323D | Statistical Computing |
| 111/L | Probability and Statistical Inference | 340 | Introduction to Statistical Decision Analysis |
| 130L | Probability and Statistics in Engineering | 360/L | Bayesian Inference and Modern Statistical Methods |
| 198L | Introduction to Health Data Science | | |
| 199L | Introduction to Data Science and Statistical Thinking | 432 | Theory and Methods of Statistical Learning and Inference |
| | | 611 | Introduction to Mathematical Statistics |
| 210L | Regression Analysis | 622 | Statistical Data Mining |
| 230 | Probability | 623 | Statistical Decision Theory |
| 250D | Statistics | | |

## Visual Media Studies (VMS)

| Course # | Course Title |
| --- | --- |
| 274D | Race, Genomics, and Society |