

	<i>A.P. Biology Topics and Subtopics</i>	<i>Advanced Research In Science</i>	<i>Medical Interventions</i>	<i>Speakers/Field Trips</i>
Quarter 1	<p>Molecules and Cells</p> <p>organic molecules membranes cell types/parts energy in cells cell reproduction DNA structure/replication</p> <p>Lab work</p> <p>pH/Buffers Diffusion/Osmosis Enzymes/Photosynthesis/Respiration</p>	<p>Research Protocol/Capstone</p> <p>Using Excel Introduction to Biostatistics Developing Problem Statements Review of Literature Hypothesis Development Variable Identification</p> <p>Controlled variables and +/- Control groups Methodology</p> <p>Draft of Chapter 1, 2, 3 due by end of quarter</p>	<p>History, Detection and Diagnosing</p> <p>Student research of disease of interest or other medical condition with focus on history, detection and diagnosis Imaging genetic screening/sequencing prenatal testing</p> <p>Lab work</p> <p>Superbugs-Antibiotic Resistance-(Intro to Bacterial Conjugation) BLAST-Disease Identification Lab Enzyme-Linked Immunosorbant Assay-ELISA-Infectious disease detection test</p>	<p>Speakers</p> <p>Dr. Peter Reiser-Research Scientist Erin Cassero-Media Specialist Gina Irwin-Medical Illustrator Dr. Rachel Layman-Breast Cancer Oncologist Dr. Rick Layman-Imaging in Diagnostics</p>
Quarter 2	<p>Heredity and Evolution</p> <p>mendelian genetics</p> <p>protein synthesis mutation population genetics natural selection speciation</p> <p>Fruit Flies</p> <p>Lab work</p>	<p>Capstone Continued</p> <p>Units, uncertainty, error margin Raw data collection and presentation Processing your data Presenting your data Data collection by end of semester 1</p>	<p>Treatment, Prevention and the Future</p> <p>Student research of disease of interest or other medical condition with focus on treatment, preventions, and the future.</p> <p>pharmaceuticals surgery chemotherapy/radiation surgical implants and prosthetics improvements in biomedicine, cancer research, genetic manipulation</p> <p>Lab work</p> <p>Skin Cancer Prevention-Yeast Sunscreen? PTC Tasting-Gene Identification/Electrophoresis pGlo-Bacterial Transformation for Custom Protein synthesis</p>	<p>Field Trips</p> <p>Battelle OSU School of Nursing Mr. Battista-Orthopedic design/joint replacement Dr. Carlos Castro-DNA Origami (nano-engineering)</p>
Quarter 3	<p>Human Systems</p> <p>Transport systems Gas supply systems Nutrient supply systems Waste removal systems Chemical communication Maintenance systems Electrical communication Sensory reception information gathering systems Muscles and movement</p> <p>Lab work</p> <p>Blood Typing-(Science Kit) Mini research with LoggerPro</p>	<p>Capstone Continued</p> <p>Evaluation/Discussion of your data Limitations Critical analysis of your experimental design Evaluate suggested improvements Discuss potential implications/application/future studies</p> <p><u>Draft of Chapter 4 due by interim</u></p>	<p>Body Systems</p> <p><i>Metabolism:</i> Cardiovascular, Respiration, Digestion, Urinary system <i>Communication:</i> Endocrine, Nervous, Muscular Systems Case studies Exercise physiology</p> <p>Lab work</p> <p>Blood Typing-(Science Kit) Biofeedback Therapy-(Using Loggerpro) Prosthetics Mini research with LoggerPro</p>	<p>Speakers/Field Trips</p> <p>Dr. Cameron Ditty Mr. Eric Stohr-Biomed Engineer Dr. Stephen Kirkby-Pulmonologist Nuclear Pharmacy-Janet Robertson and Rich</p> <p>OU Medical School Partnership</p>
Quarter 4	<p>Human Systems/Ecology</p> <p>Lymphatic systems Immune systems Reproductive systems Chemical control of reproduction Animal Behavior Plant Reproduction and Response to Stimuli Populations, communities, ecosystems Man's Affect on the environment</p>	<p>Capstone Continued</p> <p>Last draft editing The Final Research Document Poster project presentations</p>	<p>Body Systems</p> <p><i>Protection:</i> Bones, Lymphatic, Immune Systems <i>Reproduction:</i> Reproduction Case studies</p> <p>Lab work</p> <p>Organ Transplants Reproductive Technologies Stitching Wounds</p>	<p>Speakers/Field Trips</p> <p>OU Medical School Partnership</p>