04_Metabolism, Energy Balance & Body Composition

Content Area: **Science**
Course(s):
Time Period: **Full Year**
Length: **15 blocks**
Status: **Published**

General Overview, Course Description or Course Philosophy

- The course tests the students' understanding of the relationships between diet, lifestyle, and the prevention of disease. The student is expected to understand digestion, absorption, and metabolism of protein, carbohydrates, fat, vitamins, and minerals. Additionally, evaluating nutrition claims and food labels are expected student learning outcomes. This is a Rutgers University Course and students receive 3 college credits for passing the end of semester examination provided by the university. There is an examination fee associated with this course for college credit. All information discussed in the course description is the basis of the examination at the end of the semester.

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

- Metabolism: Transformations and Interactions.
- Highlight: Alcohol and Nutrition.

- Energy Balance and Body Composition

CONTENT AREA STANDARDS

SCI.HS-LS1-3	Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.
SCI.HS-LS1-2	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)

VHEL.9-12.9.4.12.H.(3).5	Apply the quantitative and qualitative terminology and codes for a range of medical information and analyze the information for designated purposes in order to facilitate the flow of information among individuals in a healthcare environment.
VHEL.9-12.9.4.12.H.(5).6	Demonstrate the principles of solution preparation, sterile techniques, contamination control, and measurement and calibration of instruments following biosafety protocols to maintain a safe laboratory environment.
VHEL.9-12.9.4.12.H.1	Demonstrate language arts knowledge and skills required to pursue the full range of

	postsecondary education and career opportunities.
VHEL.9-12.9.4.12.H.2	Demonstrate mathematics knowledge and skills required to pursue the full range of postsecondary education and career opportunities.
VHEL.9-12.9.4.12.H.3	Demonstrate science knowledge and skills required to pursue the full range of postsecondary education and career opportunities.

STUDENT LEARNING TARGETS

Declarative Knowledge

Students will understand that:

- Metabolism can transform and change over time
- Age can impact metabolism
- There are various types of body structures
- Alcohol, and other drugs and impact metabolism
- There are ways to maintain energy levels
- Identify the causes of overweight and obesity
- Hormones can have an impact on body weight
- There are types of weight loss medications
- There are surgical procedures for severe obesity
- We have various weight loss and weight gain strategies

Procedural Knowledge

Students will be able to:

- Identify ways metabolism can transform and change over time
- Explain how age can impact metabolism (hormone changes etc.)
- Identify various types of body structures
- Investigate how alcohol, and other drugs can impact metabolism
- Identify ways to maintain energy levels
- Identify the causes of overweight and obesity
- Recognize the impact of hormones on body weight
- Recall types of weight loss medications

- Recall Surgical procedures for severe obesity
- Recall weight loss and weight gain strategies

EVIDENCE OF LEARNING

Formative Assessments

- Attendance/Participation/Group Discussion – Students are expected to attend all classes and participate in classroom discussions and group activities.
- Unit Assignments – Each unit will have specific assignments geared to meet unit objectives. These assignments can be completed as homework or in class, as time permits.
- Course Projects – There will be four major projects due throughout the course. Each project will have specific directions for completion and students are expected to work individually on these projects.

Summative Assessments

- Benchmarks – departmental benchmark given at the end of MP1, MP2, and MP3
- Alternative Assessments
    - Lab inquiries and investigations
    - Lab Practicals
    - Exploratory activities based on phenomenon
    - Gallery walks of student work
    - Creative Extension Projects
    - Build a model of a proposed solution
    - Let students design their own flashcards to test each other
    - Keynote presentations made by students on a topic
    - Portfolio

RESOURCES (Instructional, Supplemental, Intervention Materials)

- https://www.niddk.nih.gov/health-information/weight-management
- Nearpods
- https://www.cdc.gov/healthyweight/index.html
- https://www.mayoclinic.org/healthy-lifestyle/weight-loss/in-depth/mayo-clinic-diet/art-20045460
- https://www.mayoclinic.org/healthy-lifestyle/weight-loss/in-depth/mayo-clinic-diet/art-20045460
- videos on diet and exercise
- guest dietician

INTERDISCIPLINARY CONNECTIONS

SCI.9-12.CCC.2	Cause and effect: Mechanism and explanation.
SCI.9-12.CCC.4	Systems and system models.

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.