

## OUTCOMES BASED LEARNING MATRIX

**Course:** BIOL139 Introduction to Human Nutrition Laboratory      **Department:** Biology

### Course Description

This course will include activities related to human nutrition, such as food sources, digestion, absorption and metabolism, and the role of nutrition in health. An emphasis will be placed on understanding and using the scientific process. Laboratory: 2 hours

Pre/Corequisite: Introduction to Human Nutrition (BIOL138)

The individual outcomes listed in the first column answer the question: **What must the learner know and be able to do at the end of the course?** Items in the third column should answer the question: **How do we know?** The second column is where teachers can be most creative; it's for pedagogy. Each rectangle in column one contains just one outcome; the corresponding rectangles in columns two and three, however, may contain more than one item.

The code indicates the core competencies being strengthened by the outcomes activities and the assessment tools.

Critical Thinking (CT); technology skills (TS); oral communications (OC); quantitative skills (QS); reading (R); writing (W).

COURSE OUTCOMES	• OUTCOMES ACTIVITIES	• ASSESSMENT TOOLS
Use the general steps of the scientific method to form hypotheses, collect and evaluate data, and draw conclusions, in order to learn to distinguish between science and pseudoscience, and to evaluate scientific information in professional journals the popular press, and on the internet.	<ul style="list-style-type: none"> <li>• Conduct experiments in lab, developing hypotheses, collecting data, interpreting data, drawing conclusions. (CT,R,W,TS,QS)</li> <li>• Conduct experiments stressing importance of controls. (CT,R,W,TS,QS)</li> <li>• Read and evaluate articles in the scientific literature, the popular literature and on the internet. (R,W,CT)</li> <li>• Discussion using PowerPoint</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes (CT,R,W)</li> <li>• Short papers (CT,R,W,TS)</li> <li>• Lab reports (CT,R,W, QS)</li> <li>• Article reviews ( CT,R,W,TS)</li> <li>• Poster session (R,W,CT,OC)</li> <li>• PowerPoint presentations (R,W,CT,TS,OC)</li> </ul>

	<p>presentation regarding characteristics of pseudoscience vs. real science and bad science vs. good science (CT,TS, OC)</p> <ul style="list-style-type: none"> <li>• Discussion identifying experts and respected sources of information in the field of nutrition.</li> </ul>	
<p>Use the vocabulary associated with the study of nutrition correctly in order to be able to read and understand the literature and laboratory instructions, and communicate effectively in a professional setting.</p>	<ul style="list-style-type: none"> <li>• Write short essays or reports (R,W)</li> <li>• Oral presentations of terms using torso or figures (R,OC)</li> <li>• Construct posters (R,W,CT,OC)</li> <li>• Prepare a PowerPoint presentation (R,W,CT,TS,OC)</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes (CT,R,W)</li> <li>• Short papers (CT,R,W,TS)</li> <li>• Lab reports (CT,R,W, QS)</li> <li>• Lab exams (CT,R,W)</li> <li>• Oral Presentations of Posters or PowerPoint Presentations(R,W,CT,TS,OC)</li> </ul>
<p>Observe and describe differences in basic tissue types in the body that are affected by poor nutrition in order to be able to discuss the effects of poor nutrition habits and their consequences on the human body.</p>	<ul style="list-style-type: none"> <li>• Demonstrations using lab microscope and monitor (TS,OC)</li> <li>• Histoweb and other internet resources (TS,R)</li> <li>• Drawings of tissue types (R,W,TS)</li> <li>• Power Point Presentations (R,W,TS)</li> <li>• View Slides in lab</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes (CT,R,W)</li> <li>• Lab reports (CT,R,W,QS)</li> <li>• Lab practical exams(CT,R,W)</li> </ul>
<p>Identify the eleven organ systems, the organs they include, and their basic function, in order to relate information about the roles of nutrients and non-nutrients to structures in the human body.</p>	<ul style="list-style-type: none"> <li>• Flashcards (R,W)</li> <li>• Oral presentation using torso, other models and figures (OC)</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes (CT,R,W)</li> <li>• Lab practical exams CT,R,W)</li> </ul>

<p>Read and interpret nutrition labels in order to make good choices when selecting food at the market.</p>	<ul style="list-style-type: none"> <li>• Read text (CT,R)</li> <li>• Attend discussion (W,OC,CT)</li> <li>• Practice reading labels from items brought in from home or purchased by the instructor</li> <li>• Construct and display posters designed to educate others (R,W,CT,OC)</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes (CT,R,W)</li> <li>• Short papers (CT,R,W,TS)</li> <li>• Lab reports (CT,R,W,QS)</li> <li>• Lab practical exams</li> <li>• Oral Presentations of Posters (R,W,TS,CT)</li> </ul>
<p>Use the metric system and other measurement systems in order to evaluate energy input, energy output, nutritional value of foods, vitamin content, and measurements in food preparation, and correctly judge portion sizes.</p>	<ul style="list-style-type: none"> <li>• Attend discussion (W,OC,CT)</li> <li>• Do study guide (R,W,CT)</li> <li>• Do Lab activities and reports and reports and/or conduct experiments using the metric system (CT,R,W,TS, QS)</li> <li>• Oral presentations or posters explaining the units on labels (R,W,CT,TS,OC)</li> <li>• Portion estimates</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes (CT,R,W)</li> <li>• Short papers (CT,R,W,TS)</li> <li>• Lab reports (CT,R,W, QS)</li> <li>• Posters (R, W, TS, QS, OC)</li> <li>• Oral presentations (R,W,TS,QS,OC)</li> <li>• Lab practical exams (CT,R,W)</li> </ul>
<p>Describe the role of the cell membrane in the cell, and relate it to the movement of materials into and out of the cell, in order to be able to explain the importance of electrolyte balance and hydration to good nutrition.</p>	<ul style="list-style-type: none"> <li>• Discussion (W,OC,CT)</li> <li>• Lab exercises on the properties of water, and osmosis and diffusion (R, W,CT,TS)</li> <li>• Simulated Urinalysis (R,W,CT,TS)</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes (CT,R,W)</li> <li>• Short papers (CT,R,W,TS)</li> <li>• Lab reports (CT,R,W,QS)</li> <li>• Lab practical exams (CT,R,W)</li> </ul>

<p>Explain the structure, digestion of, assay for, and role for each of the major groups of biologically important molecules and vitamins in order to make appropriate decisions about diet choices.</p>	<ul style="list-style-type: none"> <li>• Discussion (W,OC,CT)</li> <li>• Do study guide (R,W,CT)</li> <li>• Computer simulations ( CT,R,QS,TS)</li> <li>• Short papers (R,W)</li> <li>• Poster presentations (R,W,CT,OC,TS)</li> <li>• Lab activities (R,W,CT,TS, )</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes (CT,R,W)</li> <li>• Short papers (CT,R,W,TS)</li> <li>• Lab reports (CT,R,W, QS)</li> <li>• Article reviews ( CT,R,W,TS)</li> <li>• Lab practical exams (CT,R,W)</li> <li>• Poster presentations (CT,R,OC,W)</li> <li>• Oral presentations (CT, R, OC,W)</li> </ul>
<p>Present and interpret data from charts and graphs in order to develop skills in using charts and graphs to convey information, to be able to read and understand professional journals and to understand data used in the workplace and presented at meetings and conferences.</p>	<ul style="list-style-type: none"> <li>• Attend Discussion (W,OC,CT)</li> <li>• Power point presentations</li> <li>• ( CT,OC,TS)</li> <li>• Computer simulations (TS, R, QS)</li> <li>• Posters (R, W, OC)</li> <li>• Oral presentations (R, W, OC)</li> <li>• Lab activities and reports (R, W, TS, QS)</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes (CT,R,W)</li> <li>• Short papers (CT,R,W,TS)</li> <li>• Lab reports (CT,R,W, QS)</li> <li>• Article reviews ( CT,R,W,TS)</li> <li>• Oral presentations (R, W, OC)</li> <li>• Poster presentations (R, W, OC)</li> </ul>
<p>Use and care for the microscope correctly in order to be able to view and evaluate normal and abnormal tissues related to issues in nutrition</p>	<ul style="list-style-type: none"> <li>• Lab activities and reports (R, W, CT, TS, )</li> </ul>	<ul style="list-style-type: none"> <li>• Lab reports (CT,R,W, QS)</li> <li>• Lab practical exams (CT,R,W)</li> </ul>
<p>Analyze energy input and energy output in order to evaluate and possible adjust eating and exercise habits</p>	<ul style="list-style-type: none"> <li>• Lab activities and reports (R, W, CT, TS, )</li> </ul>	<ul style="list-style-type: none"> <li>• Lab reports (CT,R,W, QS)</li> <li>• Lab practical exams (CT,R,W)</li> </ul>

<p>Analyze the FDA food pyramid and other proposed pyramids in order to make good decisions about food and portion choices</p>	<ul style="list-style-type: none"> <li>• Attend Discussion (W,OC,CT)</li> <li>• Power point presentations</li> <li>• ( CT,OC,TS)</li> <li>• Computer simulations (TS, R, QS)</li> <li>• Posters (R, W, OC)</li> <li>• Oral presentations (R, W, OC)</li> <li>• Lab activities and reports (R, W, TS, QS)</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes (CT,R,W)</li> <li>• Short papers (CT,R,W,TS)</li> <li>• Lab reports (CT,R,W, QS)</li> <li>• Article reviews ( CT,R,W,TS)</li> <li>• Oral presentations (R, W, OC)</li> <li>• Poster presentations (R, W, OC)</li> </ul>
<p>Analyze popular diets in order to make good decisions about diet choices</p>	<ul style="list-style-type: none"> <li>• Attend Discussion (W,OC,CT)</li> <li>• Power point presentations</li> <li>• ( CT,OC,TS)</li> <li>• Computer simulations (TS, R, QS)</li> <li>• Posters (R, W, OC)</li> <li>• Oral presentations (R, W, OC)</li> <li>• Lab activities and reports (R, W, TS, QS)</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes (CT,R,W)</li> <li>• Short papers (CT,R,W,TS)</li> <li>• Lab reports (CT,R,W, QS)</li> <li>• Article reviews ( CT,R,W,TS)</li> <li>• Oral presentations (R, W, OC)</li> <li>• Poster presentations (R, W, OC)</li> </ul>
<p>Describe the role of microbes in nutrition in order to practice safe handling of food and distinguish between the positive and negative contributions of microorganisms to good health.</p>	<ul style="list-style-type: none"> <li>• Lab activities and reports (R, W, CT, TS, )</li> </ul>	<ul style="list-style-type: none"> <li>• Lab reports (CT,R,W, QS)</li> <li>• Lab practical exams (CT,R,W)</li> </ul>

<p>Describe the effects of certain personal habits (e.g. alcohol consumption, smoking) on health and nutrition in order to make good lifestyle choices.</p>	<ul style="list-style-type: none"> <li>• Movies and discussion (OC, CT)</li> <li>• Lab activities on normal and damaged tissues and organs (R, W, CT, TS, )</li> <li>• Short papers (R, W, TS,)</li> <li>• Oral presentations in class and lab ( CT,OC,)</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes (CT,R,W)</li> <li>• Short papers (CT,R,W,TS)</li> <li>• Lab reports (CT,R,W, QS)</li> <li>• Article reviews ( CT,R,W,TS)</li> <li>• Oral presentations (R, W, OC)</li> <li>• Poster presentations (R, W, OC)</li> </ul>
<p>Communicate accurately and clearly both in writing and orally in order to educate patients (for students entering allied health fields) and communicate with professional colleagues.</p>	<ul style="list-style-type: none"> <li>• Lab discussions (W,OC,CT)</li> <li>• Lab reports (R, W, TS, QS)</li> <li>• Posters (R, W, OC)</li> <li>• Short papers (R, W, TS,)</li> <li>• Oral presentations in lab ( CT,OC,)</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes (CT,R,W)</li> <li>• Short papers (CT,R,W,TS)</li> <li>• Lab reports (CT,R,W, QS)</li> <li>• Article reviews ( CT,R,W,TS)</li> <li>• Oral presentations (R, W, OC)</li> <li>• Poster presentations (R, W, OC)</li> </ul>
<p>Work safely in the laboratory and follow simple laboratory protocols in order to work cooperatively to complete laboratory exercises and conduct experiments using the scientific method</p>	<ul style="list-style-type: none"> <li>• Read and sign the safety sheet (CT,R)</li> <li>• Follow directions carefully in the lab (CT,R)</li> <li>• Follow proper procedures for disposal of waste products (CT,R)</li> </ul>	<ul style="list-style-type: none"> <li>• Observe student working safely in the lab ( CT)</li> <li>• Lab quiz or assignment requiring each student to focus and use the microscope ( CT, OC, W, R)</li> <li>• Evaluate use of math in reports ( W, QS)</li> <li>• Tests (CT,R,W) (R, W, CT)</li> <li>• Quizzes ( R, W, CT)</li> </ul>
<p>To strengthen Core Competencies in order to increase success in this and other courses and in the workplace.</p>	<p>Referenced above</p>	<p>Referenced above.</p>