The Metabolic Cycle of Life-Linking Glucose Anabolism and Catabolism
Michelle Pleet and Lisa Centrone; Dr. Robert A. Sikes and Dr. Carlton R. Cooper,
Faculty Sponsors
Departments of Animal and Food Sciences, Nursing, Biological Sciences, and Black
American Studies, University of Delaware

Students often struggle with understanding the total process of cellular metabolism. This is especially true for Nursing students, and it is unfortunate, since cellular metabolism is considered a key subject for them to master in microbiology. Cell metabolism is one of the subjects nursing students falsely assumed that they will not see after microbiology. (Reynold, 2006). Seeing the integration of key events in glucose anabolism and catabolism between bacteria with different nutrient and environmental requirements, (i.e., bacteria that consumes glucose and oxygen to produce water and carbon dioxide are depended on bacteria that use light, carbon dioxide and water to make glucose and oxygen) is a big challenge when figures are separated and discussed across several pages in a textbook. To overcome this challenge, we (one Pre-veterinarian student, one Pre-nursing student, one professor of Molecular Biology and Cancer Biology, and one professor of Microbiology and Cancer Biology), constructed a working model showing how biosynthesis (anabolism) is integrated with biologic breakdown (catabolism) using the language of microbiology, biochemistry and molecular biology. Our hope is that this will, in a comprehensive yet direct manner, enhance students’ understanding of the metabolic cycle of life.