



**UNIVERSITY OF MARYLAND GLOBAL CAMPUS (UMGC)
DEPARTMENT OF EDUCATION**

Conceptual Framework (CF) Alignment: UMGC’s professional education unit instills in all candidates the belief that all students can learn and learn at high levels, and that they as teachers and teacher candidates are instrumental in ensuring that this learning occurs. This transcript review form is used for MAT admissions in conjunction with Key Assessments 2 – Description of transcript analysis process, which aligns with CF Learning Objective 1: Teaching for Learning – The candidate acts upon academic content, professional and pedagogical knowledge, and understanding of students to maximize student achievement. The use of this transcript review form also aligns with the Department’s Professional Dispositions category 1: Relationship with students through curriculum and instruction.

**MAT TRANSCRIPT REVIEW FORM FOR SECONDARY BIOLOGY,
7-12 GRADE TEACHER CERTIFICATION NSTA/NGSS STANDARDS 2013**

NSTA/NGSS Assessment Standards for Certification	Typical Courses Aligned with Standards (Course Samples)	Courses Completed (Include Prefix, Number, and Name)	# of Credits
Structure and Function Cells and cell function Subsystems in the body Structure of DNA and proteins Systems that provide specific functions within multicellular organisms			

<p>Growth and Development of Organisms</p> <ul style="list-style-type: none"> Reproduction of animals and plants Influence of environmental and genetic factors on the growth of organisms Cellular division (mitosis) and differentiation in producing and maintaining complex organisms 	<p>Molecular and Cellular Biology</p> <p>Cell Biology</p> <p>Advanced Cell Biology</p>		
<p>Organization for Matter and Energy Flow in Organisms</p> <ul style="list-style-type: none"> Role of photosynthesis in the cycling of matter and flow of energy into and out of organisms Rearrangement of food through chemical reactions forming new molecules that support growth and/or release energy 			

Predictive patterns of interactions among organisms across multiple ecosystems

Carrying capacity of ecosystems at different scales;

Factors affecting biodiversity and populations in ecosystems of different scales

<p>Embryological development across multiple species Common ancestry and biological evolution</p>			
<p>Natural Selection</p> <p>Effects of genetic variations of traits on population increase and some individuals' probability of surviving and reproducing in specific environments</p> <p>Technologies that have changed the way humans influenced the inheritance of desired traits in organisms</p> <p>Process of evolution primarily resulting from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment;</p> <p>Advantageous heritable traits</p>	<p>Evolutionary Biology</p> <p>Extreme Animal Adaptations</p>		
<p>Adaptation</p> <p>Natural selection</p> <p>Changes in environmental conditions that may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species</p>	<p>Introduction to Evolutionary Anthropology</p> <p>Genomics of Adaptation: A Modern Look at Adaptation</p>		

Impacts of human activity on biodiversity			
Biogeology Simultaneous coevolution of Earth's systems and life on Earth	Ecology for a Crowded Planet		
Natural Hazards Influence of the availability of natural resources, occurrences of natural hazards, and changes in climate on human activity	Conservation Biology and Policy		
Human Impacts on Earth's Systems Relationship among the management of natural resources, the sustainability of human populations, and diversity Technological solutions that reduce impacts of human activities on natural systems	Biological Responses to Climate Change People, Plants, and Pollution: Introduction to Urban Environments Techniques in Biotechnology		
		Total Credits:	

Note: Applicants may qualify to enter the MAT program with a content specialization in Biology if they have an undergraduate major in the certification area, or if they have completed 30 credit hours of coursework in Biology.

Secondary Biology, 7-12 Grade Teacher Certification

Full standards are available at NSTA: <https://ngss.nsta.org/>