Cover page for   
Module 3: Transcription Part II

# Submission Details

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| Submission timestamp: | 2019/08/02 12:42:27 PM EST |
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# Lesson Overview

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| Lesson abstract: | This module teaches about the three key steps that are involved in converting the pre-mRNA into a mature mRNA: 1) The addition of a 5’ cap, 2) The addition of a 3’ poly(A) tail, 3) The removal of introns through splicing. The specific nucleotide sequences that guide the maturation process are highlighted. The student will observe that introns are removed during this process and adjacent exons are brought together in the mRNA message. |
| Lesson keywords: | Genome Browser  cDNA  mRNA  Splicing  5’ Cap  3’ Poly(A) Tail  RNA Maturation |
| Organism(s) that are the focus of this lesson: | None |
| Type(s) of student learning assessments: | Short answer formative questions |
| Websites and online databases used: | GEP UCSC Genome Browser (<http://gander.wustl.edu>) |
| Resources in addition to the lesson instructions | None |

# Learning Topics

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| Topics in scientific fields: | Genetics  Genomics  Molecular Biology |
| Topics in mathematics or statistics: | None |
| Topics in bioinformatics or data science: | None |

# Student Prerequisites

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| Recommended prior course work: | High school level biology |
| Recommended computer skills: | Basic: Familiarity with web browsers, word processing |

# Instructor Prerequisites

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| Recommended computer skills: | Basic: Familiarity with web browsers, word processing |
| Instructional requirements: | Basic Computer Lab (Access to laptops/desktops, no large memory or CPU requirements) |

# Implementation Recommendations

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| Instructional time required: | 1 class period or less |
| Students work as individuals or teams? | Either individual or team work is possible |
| Number of students in a class: | More than 50 students (assume no TAs and one computer for each student) |

# Accessibility

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| Available languages: | English |
| Additional materials for students with disabilities: | None |