

Course Calendar for **Introduction to Programming in Python (MQS21)**

2018-19 School Year

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<b>Week Beginning Monday...</b>	<b>Topic</b>
Sept 3	Norming. What is coding and the importance of a growth mindset.
Sept 10	<b>Unit 1: Intro to Programming with Turtle Graphics (6 weeks/30 hours)</b> <ul style="list-style-type: none"><li>• What is a Command?</li><li>• Moving Tracy</li><li>• Tracy's Coordinate System</li><li>• For Loops</li><li>• Functions and Parameters</li><li>• Top Down Design</li><li>• Variables</li><li>• User Input</li><li>• If/else Statements</li><li>• While Loops</li></ul>
Oct 22	<b>Unit 2: Basic Python and Console Interaction (3 weeks/15 hours)</b> <ul style="list-style-type: none"><li>• Printing</li><li>• Variables</li><li>• Types</li><li>• User Input</li><li>• Converting Input Types</li><li>• Arithmetic Expressions</li><li>• String Operators</li><li>• Comments</li></ul>

Nov 12	<b>Unit 3: Conditionals (2 weeks/10 hours)</b> <ul style="list-style-type: none"> <li>• If Statements</li> <li>• Boolean Values</li> <li>• Logical Operators</li> <li>• Comparison Operators</li> <li>• Floating Point Numbers and “Equality”</li> </ul>
Nov 26	<b>Unit 4: Looping (2 weeks/10 hours)</b> <ul style="list-style-type: none"> <li>• While Loops</li> <li>• For Loops</li> <li>• Break and Continue</li> <li>• Nested Control Structures</li> </ul>
Dec 10	<b>Unit 5: Functions and Exceptions (3 weeks/15 hours)</b> <ul style="list-style-type: none"> <li>• Functions</li> <li>• Namespaces</li> <li>• Parameters</li> <li>• Return Values</li> <li>• Exceptions</li> </ul>
Dec 24 – Jan 1	Winter Recess
Jan 7	<b>Unit 6: Strings (3 weeks/15 hours)</b> <ul style="list-style-type: none"> <li>• Indexing and Slicing</li> <li>• Math Operators on Strings</li> <li>• For Loops Over a String</li> <li>• String Methods</li> </ul>
Feb 4	<b>Unit 7: Creating and Altering Data Structures (2 weeks/10 hours)</b> <ul style="list-style-type: none"> <li>• Tuples</li> <li>• Lists</li> <li>• For Loops and Lists</li> <li>• List Methods</li> </ul>
Feb 18 – Feb 22	Midwinter Recess

Feb 25	<b>Unit 8: Extending Data Structures (3 weeks/15 hours)</b> <ul style="list-style-type: none"> <li>• Dictionaries</li> <li>• 2d lists</li> <li>• List comprehensions</li> <li>• Packing and unpacking</li> <li>• Mutable vs. immutable</li> <li>• Equivalence vs. identity</li> </ul>
Mar 18	<b>Unit 9: Project: Hangman (3 weeks/15 hours)</b> <ul style="list-style-type: none"> <li>• Allow students to combine a variety of topics into a single program</li> <li>• Introduce students to incremental development</li> <li>• Strengthen debugging skills</li> <li>• Testing</li> </ul>
April 19 – April 26	Spring Recess
April 29	<b>Unit 10: Classes and Objects (6 weeks/30 hours)</b> <ul style="list-style-type: none"> <li>• Classes</li> <li>• Attributes</li> <li>• Class variables vs. instance variables</li> <li>• Methods</li> <li>• Built-in methods</li> <li>• Composition, inheritance, and polymorphism</li> <li>• Namespaces</li> <li>• Private attributes</li> <li>• Operator overloading</li> <li>• Modules</li> </ul>
June 3	<b>Unit 11: Final Project: Who Said it? (3 weeks/15 hours)</b> <ul style="list-style-type: none"> <li>• File reading</li> <li>• Allow students to combine a variety of topics in a single program</li> <li>• Incremental development</li> <li>• Strengthen debugging skills</li> <li>• Testing</li> </ul>