**Math 20-1/Physics 20**

September 2017 – June 2018

**TEACHERS:** A. Austin, M. Wotherspoon

**Math 20-1:** This course is designed for students who intend to take Calculus in their Grade 12 year or are entering a field which requires Calculus. Post-secondary entrance into the Faculty of Science, Engineering and Business requires Pre-Calculus Mathematics 30-1. This course is an excellent option for students who enjoy Mathematics and are interested in developing a deep understanding of Math.

Each unit will be worth a different percentage; a value that is determined by the amount of time spent on those topics as well as the importance of the outcomes in that unit. These percentages are what determine your overall course mark in Math 20-1.

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| **Unit** |
| **Quadratics (17%)**  Identifying characteristics of quadratics (domain/range, intercepts, vertex), solving quadratic equations by factoring, graphing, and using the quadratic formula, analyzing discriminants and completing the square |
| **Radicals (11%)**  Performing operations on radicals, rationalizing the denominator, and solving radical equations |
| **Trigonometry (14%)**  Solving problems using sine and cosine laws, demonstrating an understanding of angles in standard position |
| **Rational Expressions (11%)**  Understand non-permissible values (NPV), performing operations on rational expressions and solving rational equations |
| **Absolute Value, Reciprocals, Systems, Inequalities (17%)**  Solving absolute value functions, graphing reciprocals and stating asymptotes, solving systems of equations, graphing and solving inequalities |
| **Sequences and Series (5%)**  Analyzing arithmetic and geometric sequence and series, including finding the specific term, general term and the sums of the series |

**Physics 20**: Physics is the discovery of the world around us. In this course we will uncover the history of physics and how it currently applies to society, technology and science.

Each unit will be worth a different percentage; a value that is determined by the amount of time spent on those topics as well as the importance the outcomes in that unit.   These percentages are what determine your overall course mark in Physics 20.

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| **Unit** |
| **Kinematics (22.5%)**  Describe the motion of objects and systems in terms of displacement, time, velocity and acceleration.  Demonstrate changes in motion as a result of unbalanced forces. |
| **Dynamics (22.5%)**  Apply Newton's Laws of Motion to varying situations; including changes in motion, inclined planes and projectiles.  Demonstrate an understanding that mechanical work results in a transfer of energy. |
| **Circular Motion, Work and Energy (15%)**  Describe uniform circular motion in terms of centripetal forces.  State Newton's Law of Universal Gravitation and apply it to a variety of problems and practical situations. |
| **Oscillatory Motion and Mechanical Waves (15%)**  Define simple harmonic motion with several examples.  Describe wave forms in terms of energy transfer and particle motion. |

**COURSE EVALUATION**

**75%..........Unit Marks**

a)   Quizzes……………………………………….…...25%

b)   Unit Exam (*Major Summative Assessment*)……...75%

**25%..........Final Exam**

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| **Assessment Design and Evaluation** | **Late Assignments** | **Reassessment** |
| * All Assessments are based on the learning outcomes written by Alberta Education. * All grades are criteria based and indicate the level of student achievement in relation to mastery of the outcomes. * Students will receive feedback on work that is completed on time. | * Late assignments need to be submitted the following day; failure to do so will result in parent contact and an assigned flex. Failure to meet this deadline will result in a meeting with administration and a possible zero being calculated into the final grade. | * Students may request a reassessment. They must put in the request within two days of receiving the marked final unit assessment. The requirements and date of reassessment will be set by the teacher.   *See below for specific information regarding the reassessment policy in Math 20-1 and Physics 20* |

**LCHS Physmatics Reassessment Policy**

Teachers will give students the opportunity to demonstrate new learning within each unit throughout the course. Class time will not be provided for the reassessment process.

* The request to reassess must be received within **two days** of receiving the exam mark.
* Reassessments for unit exams will be given **within two weeks** of the original assessment being returned.
* Students must have **all** of the unit homework and assignment completed on time throughout the course of the unit to be eligible for a reassessment.
* **Within one week** of the exam being returned, students must complete unit exam corrections and review them with their teacher. The exam corrections must be done on a separate sheet of paper for **each** incorrect question or problem on the exam:
  + Number the problem/question and rewrite it.
  + Write at least **two complete sentences** explaining what your error was and what you need to do to correct it.  Write enough to prove that you understand it now.
  + Show all work to correct the problem or question and include the right answer.
* Students can also complete or redo the original practice questions and/or quiz questions and/or work with web based resources: IXL practice questions, Khan Academy etc.
* Only a single reassessment will be provided for an individual unit exam.

**Reassessment mark will fully replace the original unit exam mark.**

**Course Materials**

* Binder with looseleaf
* Pencils, pens
* Textbook
* Calculator: TI-NSpire, TI-83 Plus, TI-84, TI-84 Plus (Staples)
* Optional: highlighters

**Course Expectations**

1. Come to every class on time. Excellent attendance is key to success in school.

2. Come to class prepared to learn with all materials.

3. Pay attention during instruction and take notes. Cell phones and head phones should not be used during instruction but listening to music during practice questions is fine.

4. Complete all work. Even if it isn’t for marks it should be done in order to learn.

5. Finally, prepare for exams early and do more than just what is assigned in class.

**Vacation Policy**

Reassessments will only be given to students who are in attendance the day of the reassessment and who have completed the necessary steps in order to rewrite an exam. Vacations are not an acceptable excuse to miss a rewrite exam. Rewrites will not be rescheduled due to vacations. Students will be expected to catch up on missed work via the website on their own time after they return from vacations.

**Website**

I post all notes and practice questions on my website the day we complete them. Students who are absent, for whatever reason, will be expected to get the notes and attempt the practice questions **before returning to class.** Clarification and questions can be asked outside of class time.

**Contact Information**

I am most easily reached via email and encourage parents and students to email should questions or concerns arise;

[amy.austin@wolfcreek.ab.ca](mailto:amy.austin@wolfcreek.ab.ca)