

**SYLLABUS**  
**MATH 14002 – Basic Mathematical Concepts II**  
**(4 Credit Hours)**

**Catalog Information:** Basic concepts of probability, statistics geometry and measurement.  
Prerequisite: MATH 14001 or MATH 10771 with a minimum grade of C (2.0).

**Text:** (Flashbook for all Kent Campus students) Beckmann: Mathematics for Elementary Teachers. 5<sup>th</sup> ed.

**Extended description:** The course consists of fundamental topics in Euclidean geometry and measurement. This includes the concepts of length, area, volume, angles, units of measurement, precision and error. The basic properties of two- and three-dimensional geometric shapes and their relationships are a central part of the course. Special emphasis is put on geometric reasoning through problem solving, including unknown angle, length, area, and volume. The course also covers topics on transformations in the plane, symmetries, congruence, and similarity. Some basic geometric proofs are included. Additional topics include an introduction to functions and equations, primarily in the linear case, and a brief introduction to Statistics and probability. (Fall 2020: 26 class meetings on Mondays and Wednesdays 11 Test 1; 12 Test 2; 4 Final exam)

**Homework** will be on Pearson MyLabs which is part of the Flash Books required for this course. There will be a link on our Blackboard site which will take you to this site.

**In addition to holding virtual office hours there will be Academic Coaching which is **\*\*NEW!\*\*****

Academic Coaching is a personalized experience in which you work one-on-one with a peer coach to set goals, improve time management and develop learning skills in a supportive environment. Schedule your first coaching session through the Academic Success Center website at: [www.kent.edu/coaching](http://www.kent.edu/coaching)

See all of the other ways that the Academic Success Center can support you this semester by visiting the ASC website for information about Scheduled Tutoring, Drop-in Tutoring, eTutoring, Supplemental Instruction, and on-demand Learning Skills Videos [www.kent.edu/asc](http://www.kent.edu/asc)

**Important Dates:**

**Wednesday, 9/9:** Last day to withdraw from any course that meets the full semester before a grade of "W" is assigned.

**Wednesday, 11/4 (by midnight):** Last day to withdraw from any course that meets the full semester.

**Sequence of topics** (subject to changes as needed)

[4 classes] **Linear Equations and Graphs** & **graphing and slope** (Chapter 9)

\* Expressions [Sect. 9.1 & 9.2]

\* Linear equations and Solving word problems involving linear relationships using a diagrams and equations [Sect. 9.3 & Sect. 9.4]

\* Sequences: reasoning about repeated patterns [Sect 9.5]

\* introduction to functions with linear functions, Linear vs. other relationships [rate of change, quadratic relationships] Sections 9.6 & 9.7]

[3 classes] **Plane Geometry** Chapter 10

\* angles, lines, informal and formal proofs with angles (Sect. 10.1)

\* parallel postulate (discuss briefly the role of postulates and definitions in mathematics), angle sum in triangles, other polygons (Sect. 10.2)

\*Circles and spheres how the definitions are different; some compass work here may be helpful; and classifying triangles, quadrilaterals and other polygons [sect. 10.3 & sect. 10.4]

[4 Classes] **Measurement**

\* Concepts of measurement (standard and non-standard units; iteration of units) and length area and volume and dimension [section 11.1& 11.2]

\* error in precision of measurements/calculations with measurements [section 11.3 & 11.4]

\* converting from one unit of measure (within a system) to another

\*Areas of rectangles (the moving and additivity principles), and triangles [sections 12.1 – 12.3]

\* Areas of parallelograms, and other polygons [section 12.4]

test #1

[2 classes] **Area continued:**

\*Shearing and changing shapes without changing areas. Also develop the area of a circle formula using sections of a circle to form an approximate parallelogram. Also the formula for perimeter of circle [Section 12.5 & 12.6]

\* Contrasting and relating the perimeter and area of shapes; and using the moving and additivity principles to prove the Pythagorean theorem. [sections 12.8 and 12.9]

(3 classes) **Solid shapes and their volume and surface area** Chapter 13

\*Polyhedra and other solid shapes (cylinders, prisms, pyramids and cones) & surface areas; [Section 13.1 & 13.2]. Using nets for each of the 4 solids to help with surface area and volume.

\*Volumes of solid shapes [section 13.3]

[3 classes] **Transformations in the Plane** Chapter 14

\* review coordinates, introduce translations, rotations, and reflections in a plane [section 14.1]

\* symmetry & congruence [sections 14.2 & 14.3]

\* Similarity and Areas, Volumes, and similarity [sections 14.5 & 14.7]

**Test 2 covering sections 12.5 – 12.9, Chapters 13 and 14**

[2/3 classes] **Statistics**

\*Formulating Statistical questions, gathering data and using samples [section 15.1]

\*Display data and interpreting data displays and Center of data (mean, median and mode)  
[section 15.2 & 15.3]

\*Describing, summarizing and comparing data distributions. [section 15.4]

[2/3 classes] **Probability**

\* theoretical and experimental and counting the number of outcomes [sections 16.1 and 16.2]

\* calculating probabilities of compound events [section 16.3]

\* using fraction arithmetic to find probabilities (and/or) [section 16.4]

[Review for final exam](#)

[Common Final exam](#)