Appendix A

Semester Project Option Handbook for Research

https://drive.google.com/drive/folders/1cX3eJck5mbsWbHM607Xw_j8U0RdzJ3zQ

Appendix B

Semester Project Option Handbook for Community Engagement

https://drive.google.com/drive/folders/1cX3eJck5mbsWbHM607Xw_j8U0RdzJ3zQ

Appendix C

Service-learning Quality Assessment Tool (Furco, et al, 2023)

https://drive.google.com/drive/folders/1cX3eJck5mbsWbHM607Xw_j8U0RdzJ3zQ?ths=true

Appendix D

Math 312 Spring 2024 Syllabus

Math 312: Spring 2024

Elementary and Middle Grades: Mathematics for Social Analysis

Syllabus V3

THIS CLASS IS DESIGNED FOR TEACHERS – 3 credit hours.

Instructor: Dr. Jean Mistele

Office:

Whitt 209

Phone: 540-239-4615 (cell)

E-mail: jmistele@radford.edu; Please use this email address instead of contacting me through D2L

Math Workshop: Mondays 2 - 3 and Fridays from 3:30 – 4:30

Office Hours: By appointment. Drop-Ins are welcomed! If you see me in my office, I will meet with you J

COURSE DESIGNATION

Citizen Leader-designated Courses and the Citizen Leader Program:

This is a Citizen Leader (CL) designated course. This means the course was reviewed by the CL Program Office. CL designation ensures that this course meets the learning objectives set forth by the Citizen Leader Program, which supports students' abilities to reflect on the course content, activities, and/or projects as students make connections between their coursework and their role as civically aware leaders in their communities. The CL Program is one of a few Graduation Distinction Programs offered at RU. The Citizen Leader Program requires students to successfully complete 6 credits of CL designated coursework, 20 hours of community engagement, attend 4 designated CL events on campus, engage in an immersive experience, and disseminate the journey. Students enrolled in this course complete part of the requirements to achieve Citizen Leader Distinction at graduation. Students interested in the Citizen Leader Program are encouraged to visit us at the Citizen Leader Program Office located in Whitt 111 or contact Dr. Jean Mistele, jmistele@radford.edu.

The syllabus is a living document and may change over the semester to meet the needs of the class.

Prerequisites

Math 121 or Math 122

Course Meeting Times

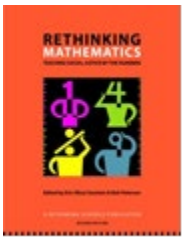
Meets T, R

Whitt 214

Section 01: 11:00 – 12:15 pm

Course Texts

- Gutstein, E., & Peterson, B. (Eds.). (2013). *Rethinking mathematics: Teaching social justice by the numbers*. Milwaukee, WI: Rethinking Schools. 2nd



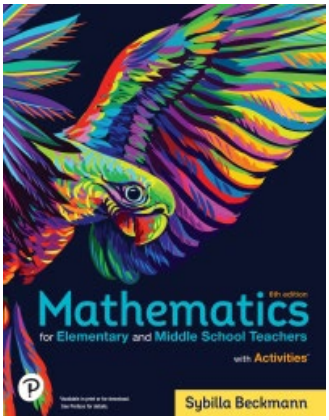
Course Online Text (through MML - ebook):

Beckmann, S. (2022). *Mathematics for Elementary and Middle School Teachers*. (6rd edition), New York, NY: Pearson.

We will learn mathematics content in chapters 9, 15, and 16 from the book you used in Math 121/122.

Class Time Focus: Mathematics conceptual understanding and modelling how to teach to all students.

Homework Focus: Mathematical fluency, mathematics problem understanding, and understanding why we use culturally relevant pedagogy to teach to all students.



You will be given a code to access the MML homework for this course (Cost $75/semester). Our Pearson publication representative is Ben Manzenberger. He will assist you with gaining access to MyMathLab if you are having any difficulties. His email is: ben.manzenberger@pearson.com.

Radford University Technology Support: The Technology Assistance Center provides a number of options for students to find answers to common questions and request assistance.

- Find common answers or submit an online support request: www.radford.edu/itonestop
- Phone Support: (540) 831-7500; Monday - Thursday 8 a.m. – Midnight, Friday 8 a.m. - 5 p.m.
- Walk-in Support (Appointment Recommended); Walker Hall 1st floor lobby; Monday through Friday 8 a.m. – 4:45 p.m.
- Additional materials and assignments will be distributed in class or made available in D2L and/or in MyMathLab as needed.

Get Started with Pearson's MyMathLab

First, make sure you have these 3 things...

Email: You'll get some important emails from your instructor at this address.

Course ID's: mistele77064

Access code or credit card: The required access code comes either with your book or by itself at your bookstore. Alternatively, you can buy instant access with a credit card or PayPal account during registration.

Next, get registered!

1. Go to **www.pearsonmylabandmastering.com**.
2. Under the large **Register** section on the right side of the page, click the **Student** button.
3. Read the onscreen instructions and click **OK! Register now.**
4. Next, enter the **Course ID** for your class.

   Section 02 (12:30 pm class) – Mistele77064
5. Do one of the following:
   a. If you bought or will buy your book at the Radford bookstore (recommended), it came with an access code in the package - **Create** a new Pearson username and password.

      Then, on the next page, click the **Access Code** button

b. If you've already registered for a class that used MyMathLab - **Sign In** with that username and password.

c. If you bought a hardcopy of the book from another store and it did not come with an access code – you will need to buy access to mymathlab that also includes the online e-book

d. If you do not want a hard copy of the book, only an e-book and access to MyMathLab, then, you can purchase instant access as you register by clicking on the purchase options under the **Use a Credit Card or PayPal** section.

6. You are now registered! Now, it's time to sign in. Go to

   www.pearsonmylabandmastering.com

   and click the **Sign In** button in the top right. Enter your username and password.

This is a video link by Pearson shows you how to register for mymathlab.

MyLab Student Registration Video - 2018 - Bing video

Need help?

Visit www.mystatlab.com/get-registered for:

- Helpful videos
- Frequently Asked Questions
- System Requirements
- Other helpful "getting started" info!

Or visit Pearson's 24/7 Technical Support site at

http://247pearsoned.custhelp.com

D2L, MyMathLab (MML) and the Discussion Board on D2L (for Research semester project option) will be used **extensively** in this course. You will submit most of your assignments into a drop box on D2L or complete assignments on MML. All course material is available on D2L or MML. Please consult D2L, MML and the discussion board (if you chose the research semester project option) **OFTEN** since it will contain the information you need about assignments and due dates. I will use the Announcement application in D2L to communicate with you outside of class. It is **your** responsibility to stay informed by visiting D2L often to see if any new announcements appear. You **cannot** claim, "*But, you didn't tell us that was due.*" All assignments are available to you with their due dates on the first day of class. They are in the syllabus.

Detailed Description of Course

The primary purpose of this course is to prepare future elementary and middle school teachers to critically analyze and explore the world using mathematics. Students will conduct meaningful and carefully reasoned real-world investigations and critiques using elementary and middle school mathematics and communicate the results of these problem-posing and problem-solving investigations both orally and in writing. This course examines the interplay among mathematical topics and integrates mathematics across the curriculum. Students are introduced to the National Council of Teachers of Mathematics [NCTM] Standards and to the Virginia Standards of Learning. Mathematical content emphases are also based on the NCTM Standards and that focuses on algebraic thinking, data analysis, and probability.

Detailed Description of Course Conduct

Course instructors model the type of instruction that support preservice teachers. Instruction includes cooperative/group learning, projects, student research, presentations in and outside of the classroom, small group and whole class discussions and questioning, and student

explorations of mathematical concepts using manipulatives and technology. Diverse assessments include formative assessments in which students monitor their own learning that informs instructional decisions and summative assessments.

This course has several aims:

- First, this course provides students with opportunities to deepen and increase the flexibility of their understanding of elementary and middle grades mathematics content.
- Second, this course helps students begin thinking about how to teach mathematics for understanding. We will use mathematics manipulatives, technology and refer to the Virginia SOLs and/or the NCTM Principles and Standards documents (1989, 2000).
- Third, and perhaps most importantly, this course prepares students to identify and carry out applications of mathematics to other disciplines and examine the relevance and significance of having and using mathematical knowledge for civic purposes.

Given the general reputation that mathematics is isolated and separate from students' daily lives and interests. This course explores overlooked topics and issues in elementary and middle grades mathematics education from a mathematics perspective. Mathematical content may include components from each of the following five content strands, but focuses on the following topics linked to algebra, probability, and statistics. Specifically,

- Algebraic Thinking:
  - Variables
  - Patterns and functions
  - Graphing
  - Mathematical models

  - Analysis of change
- Data Analysis and Probability:
  - Measurement and categorical data
  - Formulating questions, designing studies, and collecting data
  - Graphical representations of data
  - Mean, median, mode, and range
  - Probability concepts and simple experiments

Interdisciplinary content varies semester to semester depending on current issues, student interest, and text readings. Interdisciplinary content includes many diverse relationships to science, social studies, and language arts. Course content includes discussions of political, social, and economic challenges and implications associated with reading and writing the world using mathematics.

Course Goals

- Deepen and increase the flexibility of your understanding of elementary and middle grades mathematics content.
- Learn how to critically analyze and explore the world using mathematics.
- Learn how to connect math to other subjects and to children's lives outside of school.
- Begin learning how to teach math for understanding, using math manipulatives and/or technology while addressing state and national math standards.

Course Objectives Specific to this Instructor

You will be able to:

1. Explain mathematics concepts for algebra, probability, and statistics and solve a variety of problems related to algebra, probability, and statistics.

2. Use mathematics to understand social issues on a local, national, and/or global level.
3. Design community engaged mathematics activities with clear objectives linked to a particular SOL using an appropriate level of cognitive demand.
4. Shift your focus from student to teacher.

Time management and personal organizational skills are crucial to stay current in this course. Start now to manage your time effectively to ensure your success!

Course Requirements

Requirements one and two, listed below, represent policy developed by the mathematics education professors in the Department of Mathematics and Statistics.

1. **Late work**

   No late assignments will be accepted (unless there is an extreme emergency, which requires documentation). The assignments are all known from the first day of class, with due dates, and are available to you early, in case you need additional time to complete them. You can complete the assignments before they are due.

2. **Participation/Attendance**

   Participation requires attendance because you cannot participate if you are not present. However, merely attending the class and not engaging in the classroom activities is not participation. This means you can earn a 0 even if you attend class. Your participation is based on **my perception** of your behavior. You will not earn your participation point if you are engaged in disruptive behaviors. This includes **talking** while others are talking, including me, completing homework for another course during my class, or using **your cell**

phone. Be aware, using your cell phone during class is **my pet peeve,** in which you can lose one point.

This is a face-to-face course: It is my expectation that you attend class **in person** unless you have made alternative arrangements with me prior to the start of class due to illness, medical reasons, or the need to isolate or quarantine due to COVID-19. Many of the topics and content explored in the course will be taught and communicated via class demonstrations, activities, and discussions. Therefore, attendance and participation are crucial for a complete understanding of course material.

Be assured that I will do what I can to work with students to facilitate their successful completion of the course. I encourage you to contact me if you have questions or concerns sooner rather than later. The Dean of Students Office is also available for assistance regarding extended absences (dos-web@radford.edu, 540-832-6297, www.radford.edu/dos).

Attendance

You may miss (not attend) **one** (1) day without penalty. If you miss or do not participate in **more than 5 classes**, you can earn no higher than 55**% for your attendance grade**. If you come in late, it is **your** responsibility to ensure that I have not counted you absent. You are an adult. No excuses will be allowed for missing a class due to non-academic activities (Greek life, intermural games, theatre productions, etc. or the need to do or complete homework for another course, except in extreme cases). You will be counted absent if you do homework for another class **during** my class time! There is consideration given for extreme cases that may impact your attendance. If you have a documented medical reason that impacts your attendance on a regular basis, you may want to consult CAS ASAP.

Cancelled Class

If class is canceled (such as weather related or I am attending a conference), there will be an assignment on D2L to make up for the cancelled class. **This homework assignment will be due by 11:59 pm on the day that class was cancelled.** It will count as your attendance grade for that day.

Participation grade based on points:

0 day absent = 100% (A, this includes your 1 allowed absence)

1 day absent = 95% (A)

2 days absent = 90% (A)

3 days absent = 85% (B)

4 days absent = 75% (C)

5 days absent = 65% (D)

6 days + absent = 55% (F)

*See Code of conduct below.

3. Reflective Writing or D2L Discussion Link

The Reflective writings address social issues using mathematics that come from readings in the *Rethinking Mathematics* book. The writing ranges from half of a page to three pages. Pay attention to the format. You will upload your responses into D2L. A writing prompt is provided in D2L stipulating the page length, the prompts for your response, and the rubric. Your grade is based on proper grammar, proper sentence structure, organization, and your thoughts about the reading *based on the writing prompt*. These reflective writings are not a summary explaining the article. You must reflect on the readings and discuss your thoughts

about them based on the writing prompts. The goal is to help you develop your writing skills as an educated professional.

D2L Discussion Link: You will respond to a discussion link on D2L. These links will not be re-opened for you because they prepare you for our next class discussion/activity. This format *may* be used in lieu of a reflective writing assignment from the *Rethinking Mathematics* textbook.

4. **Mathematics Homework**

The math homework assignments come from the textbook you used in Math 121. You will complete the math homework on MyMathLab. They are graded on MyMathLab. The assignments associated with this course have the prefix **Math 312**. For example, Math 312 Homework #1.

You can rework these problems as many times as you want to improve your score **until** the assignment closes at the end of the semester.

5. **Quizzes**

There will be 3 quizzes; one for each chapter we study. They are in person in class.

6. **Final Exam**

The final exam is cumulative and in class. Please arrange your life so it does not interfere with the exam schedule.

7. **Semester Project Overview – Details in a Booklet online and hard copy**

There are two options from which to choose: 1) a community engagement opportunity at the Radford City Library working with the Literacy of the New River Valley community-based partner and 2) is an individual research project. In both cases, mathematics activities are created and presented in this class. Details are provided on D2L under the Semester Project folder and in a booklet. I will give you a hard copy when you make your choice.

Option 1: Service-Learning – Literacy Volunteers of the New River Valley (LVNRV):

The first option is a service-learning opportunity; working with children in grades K - 8. You will work collaboratively with a member of the *Literacy Volunteers of the New River Valley* Program held at the Radford City Library each Tuesday evening from 5:30 – 7:45 pm. Dinner is served to the families and you. Your main job requirement is to keep the children engaged in positive activities while their parents hone their English speaking and reading skills. You will design mathematics activities based on a book chosen by LVNRV and assist with other responsibilities required by the non-profit. The time of presenting your activity is between 6 – 7:20 pm. You have time to design a rich activity. You will work with children between 3 – 8 with some older. We can segment activities into 3 bands: PreK – 3 and 4, K – 5 and 6, 1st – 7 – 8. Please let me know if you require any supplies.

The evening schedule is (estimate):

5:30 – 6 = Group – read a book and dinner

6 – 7:20 = Children separated for engagement while parent hone English skills

7:20 – 7:45 = Group game based on the book

Option 2: Research and Social Issue Mathematics Activity

You will identify and research 3 social issues that interest you and choose one to create a mathematics social issue activity. You will engage with other classmates who chose the Research option, using the discussion board platform in D2L. Please feel free to discuss your research topic and lesson ideas with others. The weekly discussion prompts are provided with my examples and are due **Sunday at 11:59 pm** beginning **Week 2**.

Near the end of the semester, you will teach your social mathematics activity to your classmates and receive feedback from them. You will **not** copy a lesson you found in a book, online, or elsewhere. This is plagiarism and you will receive a **0** for your activity. The goal is to have you learn how to create **your own** mathematics activities so you can understand the components required to create a cognitively demanding math activity that includes a social issue. You will need to devote a portion of the time teaching the social issue. You can use power point slides, YouTube videos, or other ways to explain why your social issue is important. Mathematics will highlight the importance of your social issue.

For each semester project option, the following percentages are used to calculate your overall grade for the semester project.

Summary of Semester Project Options

Option 1: Service-Learning	Percent	Option 2: Social Math Activity	Percent
Teach social issue mathematics activity to Math 312 – small group (30 minutes). Peer review	20	Teach social issue mathematics activity to Math 312 – small group (30 minutes). Peer review.	20

Radford City Library	40	Discussion board and Article summaries Evaluation	40
Final reflection on peer teaching your math activity, experience working with children, and teaching your math activity to the children.	20	Final reflection on your research (resource summaries), experience creating your math activity, and teaching your math activity to your peers.	20
Final math activity	20	Final social issue math activity	20
Total Points	100%	Total Points	100%

Time management and organizational skills are crucial to stay current in this course. Start now to manage your time effectively to ensure your assignments are completed on time or early!

Grading

I encourage you to keep track of your grades. I encourage you to ensure we are in agreement with all of your grades. Note there is a potential for assignments to be changed or modified based on the needs of this class.

1. **Graded Assignments**

Assignments	**Number**	**Percent of Total Grade**
Participation		10%
Math homework	8	30%
Math quizzes	3	30%
Semester Project	1	10%

Final Exam	1	20%
Total percent		100%

2. Grading Scale:

90% - 100% A

88% - 89.9% A-

86% - 87.9% B+

80% - 85.9% B

78% - 79.9% B-

76% - 77.9% C+

70% - 75.9% C

60% - 69.9% D

0% - 59.9% F

Schedule

Please note, this can change based on the needs of the class. The updates will appear in D2L, MML, and in class. **Most homework is due Sunday at 11:59 pm**. There will be times when **more than one** assignment is due Sunday night. Therefore, **plan** and **start early**. Time management and personal organizational skills are crucial to stay current in this course. Start now to manage your time effectively to ensure your assignments are completed on time or early!

Week	Date	Topic	Homework with Due Dates
1	January 16 –18	T: Introduction to Class; Semester Project review R: Math Activity Components –	Choose your semester project option – Put in drop box on D2L, Sunday (Jan.21) 11:59 pm.

		Cognitive Content Demand/Objective/SOL	
2	January 23 – 25	Considering real-world issues in mathematics classroom; learning objectives T: Designing a Math Activity – Content/Cognitive Demand/SOL R: Math activity about a social issue.	Sign up for presentations based on your Semester Project Option: in-class LVNRV Option: Training starts next week. Research Option: Discussion 1 – Share 3 social issues that you are considering. Closes Sunday (Jan. 28) at 11:59 pm.
3	January 30 February 1	Statistics T: 15.1 R: 15.2 Projects – content, cognitive demand, SOL, social issue	Homework set #7 (Ch 15.1 & 15.2) Sunday (Feb. 4). LVNRV Option: Attend training this week; Create your first math activity. Research Option: Discussion 2 – Finalize your social issue topic and develop a research question. Closes Sunday (Feb. 4) at 11:59 pm.

			Formal Writing #1 -*Rethinking Mathematics* – See drop box for details, due Sunday (Feb. 4) 11:59 pm.
4	February 6 – 8	T: Ch. 15.3 R: Ch. 15.4 Projects – Projects – content, cognitive demand, SOL, social issue and/or LVNRV Option teaches math activity	Homework set #8 Sunday (Feb. 11) 11:59 pm LVNRV Option: The program starts Feb. 6 at 5:30 pm. Revise your math activity after you present, begin reflection draft. Research Option: Discussion 3 – Discuss your resource summary # 1 related to your social issue. Closes Sunday (Feb. 11) at 11:59 pm.
5	February 13 – 15	T: Review R: Quiz #1 (Ch. 15, Statistics) Projects – content, cognitive demand, SOL, social issue LVNRV Option: Teach math activity	LVNRV Option – revise your math activity after you present, begin reflection draft. Research Option: Discussion 4 – Discuss your resource summary # 2 related to your social issue. Closes Sunday (Feb. 18) at 11:59 pm.
6	February 20 – 22	Probability T: Ch 16.1 R: Ch.16.1	Homework set #5 (16.1 – 16.2) Sunday (25) 11:59 pm LVNRV Option – revise your math

		Projects – content, cognitive demand, SOL, social issue LVNRV Option: Teach math activity	activity after you present, begin reflection draft. Research Option: Discussion 5 – Share resource summary # 3 related to your social issue. Closes Sunday (Feb. 25) at 11:59 pm.
7	February 27 - 29	T: Ch. 16.2 R: Ch. 16.3	Homework set #6 (16.3 – 16.4) **Monday** (March 11) 11:59 pm LVNRV Option – revise your math activity after you present, begin reflection draft. Research Option: Discussion 6 – Summarize your social issues and demonstrate you have the information to answer your research question. Closes **Monday (March 11)** at 11:59 pm.
	March 2 - 9	Spring Break	
8	March 12– 14	T: Ch. 16.3 R: Ch.16.4 Projects – content, cognitive demand, SOL, social issue	LVNRV Option – revise your math activity after you present, begin reflection draft. Research Option: Discussion 7 – Discuss appropriate grade

		LVNRV Option: Teach math activity	band for your social issue. Closes Sunday (Mar. 17) at 11:59 pm.
9	March 19 – 21	Algebra T: Review R: Q2 Projects – content, cognitive demand, SOL, social issue LVNRV Option: Teach math activity	LVNRV Option – revise your math activity after you present, begin reflection. Research Option: Discussion 8 – Discuss possible mathematical content strand for your math activity. Closes Sunday (Mar. 24) at 11:59 pm.
10	March 26 - 28	T: Ch. 9.1 R: Ch. 9.2	Homework set #2 (9.1, 9.2) Sunday (Mar. 31) at 11:59 pm. LVNRV Option – last day Tuesday, March 26 Research Option: Discussion 9 – Create mathematics objective. Closes Sunday (Mar. 31) at 11:59 pm.
11	April 2 - 4	T: Ch. 9.3 R: Ch. 9.4	Homework set #3 (9.3, 9.4) Sunday (Apr. 7) 11:59 pm Formal Writing #2 Ch.8 (pp. 61 – 66) and Ch. 15 (pp. 122 – 124). See D2L for

			writing prompt due Sunday (Apr. 7) 11:59 Research Option: Discussion 10 – Discuss the cognitive demand level for your activity. Closes Sunday (Apr. 7) at 11:59 pm.
12	April 9 - 11	T: Ch. 9.5, 9.6 R: Ch. 9.6, 9.7	Homework set #3 (9.5, 9.6) Sunday (Apr. 14) 11:59 pm Semester Projects: Both Options – Please create your packages to turn in on the Final Exam Day. I would like to review your packages BEFORE I grade them. Particularly, the math activity (please use the template). If you need a folder with pockets, please let me know.
13	April 16 - 18	T: Finish up Ch. 9 and Review R: Quiz # 3 (Ch. 9, Algebra)	Homework: Catch up on MML homework Formal Writing: Catch up on #1 and/or #2 LVNRV Option: Finalize your package to turn in.
14	April 23 - 25	T: Research Project Option: Students teach social issue math activities (20 minutes each).	Homework: Catch up on MML homework Formal Writing: Catch up on #1 and/or #2 LVNRV Option: Put your math activity,

		R: – Review for the Final Exam	items related to the activity, children's work, and your final reflection into a folder. You can turn this in before the final.
Exam Week	April 29 – May 2	Tuesday, **April 30 at 12:30**	Exam: Cumulative; multiple choice; in class All Semester Projects Due: Turn in folders

Accommodations

Please contact me as soon as possible to discuss any special accommodation you need to be successful in this course. Our discussion will be kept confidential.

Center for Accessibility Services

If you are seeking academic accommodations under the Americans with Disabilities Act at Radford University, you are required to register with the Center for Accessibility Services (CAS). They are located in Russell Hall room 325. You can email them at CAS@radford.edu or call them., 540-831-6350.

CAS requires you to meet with your professors before your accommodation is initiated. Please make an appointment to discuss your accommodations with me – Thanks 😊

Honor Code

Academic integrity is an essential part of any institution of learning. Radford University has an Honor Code, which expects students to conduct themselves ethically. The individual's commitment to the Honor Code builds trust with each other, where the trust is critical to the learning experience.

To read the Honor Code in its entirety, please see the *Standards of Student Conduct,* http://www.radford.edu/content/dam/radford/content-files/standards0910.pdf

*The Radford University Code of Conduct Pledge:

I shall uphold the values and ideals of Radford University by engaging in responsible behavior and striving always to be accountable for my actions while holding myself and others to the highest moral and ethical standards of academic integrity and good citizenship as defined in the Standards of Student Conduct. Included in the code is number 14, **disruptive conduct**:

1. Disruptive Conduct

Disrupting the regular or normal function of the Radford University community (on or off campus), including, but not limited to, behavior which breaches the peace, violates the rights of others, or constitutes a public nuisance.

In the classroom this means violating others' right to learn. This occurs when you carry on private conversations unrelated to the class, talk while the teacher or other students are talking. You violate and undermine your own learning when you text during class, visit social networks, etc.

If you choose to participate in any of these disruptive behaviors, you will be asked to leave the class and you will immediately and quietly exit the classroom. Please do not email me about what you missed during class.

1. All cell phones **off** and placed into your backpack.
2. Respect others when they are talking – during full class discussions or presentations.
3. Do not leave the class early.