

**EDUC 402 (Section 004)**  
**Using Literacy to Teach and Learn Mathematics in the Secondary Schools**  
**Fall 2018**

**Syllabus<sup>1</sup>**

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**COURSE DESCRIPTION:**

EDUC 402 is focused on supporting the development of mathematical literacy with secondary students. The course is designed to build literacy through the teaching and learning of mathematics. This approach is different from treating literacy as additional to the traditional mathematics curriculum. To this end, the course will support you in (a) understanding how literacy practices are integrated into mathematical work, particularly as required by the Common Core State Standards mathematics and literacy practices (CCSSO, 2010), (b) analyzing mathematical work including tasks, texts, and talk to determine what literacy practices are required for students engaging in the work, (c) examining mathematical strands that are closely tied to literacy practices, and (d) developing skill with teaching practices that support and make explicit mathematical literacy for all students.

Because this is a course designed to work on understanding and teaching mathematical literacy, we will work on mathematics each week, primarily in the areas of data representations, analyzing functions, and constructing and critiquing arguments. In particular, we will examine how skill with literacy practices (reading, writing, interpreting, speaking, and listening) in each of these mathematical areas can support our students to become full participants in a democratic society and how failing to address mathematical literacy in secondary coursework can put our students at risk.

At the same time, this course focuses on teaching that develops mathematically literate students. To that end, we will frequently engage in teaching practice together, trying out the work of teaching with peer and instructor feedback. We will have opportunities to try out and get feedback on the following: choosing and using representations and examples, eliciting and interpreting student thinking, learning about students, giving clear directions, and modeling and explaining content.

**HOW WE WILL WORK TOGETHER:**

As in other courses in the teacher education program, our work will be “practice-based” in four senses of the phrase. First, you will be participating in a common practice, our class activities, discussions, and interactions offer us opportunities to study practice from the inside. You can learn by paying attention to

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<sup>1</sup> I have constructed this course with the collaboration of Enid Rosario-Ramos, Maisie Gholson, and Meghan Shaughnessy. I am appreciative of the work developed by Darin Stockdill, Elizabeth Moje, Bob Bain, Michelle Kwok, Julie Learned, Deanna Birdyshaw, Ander Erickson, and Emily Rainey, on which this course is based.

and analyzing our interactions together. Second, we will study records of practice to learn the work of teaching. These records — video records of lessons, students' work, and teacher's plans, materials, and reflections — make it possible for us to study classroom mathematics, the work of teaching, and students. Third, we will practice together and critique the use of specific teaching techniques to improve enactment and deepen understanding. Fourth, many assignments will involve carrying out specific instructional practices. We expect your performance on these to show progress toward becoming a responsible beginning teacher.

### **REQUIRED COURSE TEXT, COURSEPACK, or PRINT MATERIALS**

All course readings can be found on the course Canvas site.

### **COURSE RECOMMENDED MATERIALS**

These texts are not required, but may be useful to you as you move into your professional career.

Hoffer, W.W. (2016). *Developing Literate Mathematicians: A guide for integrating language and literacy instruction into secondary mathematics*. Reston, VA: National Council of Teachers of Mathematics.

Kelemanik, G., Lucenta, A., & Creighton, S.J. (2016). *Routines for Reasoning: Fostering the mathematical practices in all students*. Portsmouth, NH: Heinemann.

### **COURSE GOALS**

#### **Objectives - Students who complete this course successfully will be able to:**

During this course, you will further develop your capacity to:

1. Explain the nature of and relationship among literacy processes and practices with the discipline of mathematics.
2. Analyze the literacy challenges your students might face with respect to particular texts used in secondary mathematics.
3. Design and practice instructional responses to common mathematical literacy issues in the areas of reading, writing, vocabulary, explanation, and speaking/listening.
4. Demonstrate an understanding of how the individual students you are teaching, the context in which you are teaching, and the texts you select impact your planning and instruction.
5. Plan lessons that integrate mathematical literacy instruction into the overall curriculum.
6. Recognize student's mathematical literacy strengths inside of written work, talk, and representations in order to plan for instruction.
7. Teach and reflect on a lesson that integrates mathematical literacy.

These objectives address components of the following INTASC Standards (CCSSO, 2017)

#### Standard #1: Learner Development.

The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.

#### Standard #2: Learning Differences.

The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.

#### Standard #4: Content Knowledge.

The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.

#### Standard #6: Assessment.

The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.

Standard #7: Planning for Instruction.

The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.

Standard #8: Instructional Strategies.

The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.

Standard #9: Professional Learning and Ethical Practice.

The teacher engages in ongoing professional learning and uses evidence to continually evaluate his/her practice, particularly the effects of his/her choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.

## **Grading Criteria**

**The following is a list of course requirements. Detailed guidelines and evaluation rubrics for assignments will be made available on Canvas. Your grade will be composed of four components: attendance & participation, weekly assignments, major assignments, and a final exam. Details for these components can be found below.**

### **1) ATTENDANCE & PARTICIPATION:**

Attendance as a form of professionalism is an expectation in this class. You are expected you to attend every class, to arrive on time for a prompt start and to stay until the end. There are three acceptable reasons for missing class: illness, family or personal emergency, religious holiday. If you cannot be present for a class session, please email me prior to the class session.

Our class will build on readings, discussions, in-class demonstrations and deconstruction of strategies, your knowledge of schools, and your personal and collaborative reflections. As a result, your attendance and participation in our class activities is important not only for your own learning, but also for the learning of others in the class. Thus, I will also evaluate your participation in class. Participation can take many forms. I will evaluate you holistically across these categories to determine whether you have earned the five points for each session:

- Regular attendance (guidelines are below)
- Thoughtful, prepared, and courteous participation in whole- and small-group activities (including evidence of having completed readings)
- Collaborative work with your colleagues

### **2) WEEKLY ASSIGNMENTS**

You will have weekly assignments for each class. Assignments will be distributed in class and should be completed by the specified due date. These will be tasks related to the mathematics and high-leverage teaching practices that you are developing this term. This includes reading assignments to prepare for the work that we will be doing in class as well as to extend the work that we do together. Assignments will also be designed to help you prepare for upcoming work in class. Parts of these assignments will be graded based on the quality of the work, but other parts will be graded for completion. I will be explicit with you when assigning each weekly assignment about how the assignment will be graded. You are expected to complete fully each of these assignments. The Office of Teacher Education will be apprised if there is more than one weekly assignment that you do not submit on time. This is consistent with the fact that this is a professional course.

### **3) MAJOR ASSIGNMENTS**

**SCHOOL, TEXT and STUDENT STUDIES:** You are expected to fully contribute to the completion of a series of team projects, ideally based in your field placement sites (although this might shift depending upon student placements and scheduling issues). I will provide rubrics with guiding

questions to complete these studies. We have scheduled your reports of these studies to be due throughout the semester so that we can discuss them in class, so you need to begin working on the first part (SCHOOL STUDY) immediately.

**School Study:** This assignment asks you to research the community and school context for your placements. You will work with your team to gather information in note form prior to class and then develop a poster during class.

**Text Analysis:** This assignment will give you the opportunity to conduct an in-depth examination of the number and nature of texts available and routinely used in your field placement classroom. You will also address the demands those texts place upon students as readers and writers.

**Student Study:** For this assignment, you will use your practicum experience to observe literacy practices of secondary school teachers and adolescents at work. Your task is to get to know a young person in your school setting as both a student and a person. You will use field notes, interviews, and targeted assessments to complete the assignment. The purpose for the field work is twofold: first, to increase your understanding of the challenges faced by adolescents in learning content area material; and second, to situate the teaching that you plan to do among real students and real colleagues. (Note: You should start asking students if they'll let you "study" them immediately. When you ask them, you should clarify that you are not doing a research study; rather, you are studying them as a way of helping you learn how to be a teacher. You can also start developing your instruments before it is time to administer them.)

**GIVING A COMPLEX EXPLANATION:** You will record yourself delivering a complex explanation involving mapping across representations. This explanation will involve literacy practices as well as the work of modeling and explaining content as a teaching practice. This assignment will count for both EDUC 413 and EDUC 402.

**LESSON PLANS & TEACHING:** You will plan 1 mathematics LITERACY lesson in conjunction with your teaching demonstrations for EDUC 413. This should be a lesson that you would normally teach in mathematics. The *literacy* piece is not meant to be an additional activity. Instead, you will demonstrate in your planning that you have:

- analyzed the texts that you would want your students to read or write
- developed a lesson that will not only use these texts, but also teach them *how* to read and write in the ways you expect
- included a method for assessing whether students have successfully read and/or written the texts you have included/assigned.

**FINAL EXAM:** The final will be posted on Canvas and it is a take-home exam.

	<b>Weight</b>
<b>Professionalism &amp; Classroom Citizenship</b>	
<i>Attendance &amp; Participation</i>	5%
<i>Weekly Assignments</i>	15%
<b>Assignment 1 – School Study</b>	5%
<b>Assignment 2 – Text Study</b>	15%
<b>Giving a Complex Explanation</b>	10%
<b>Assignment 3 – Student Study</b>	15%
<b>Assignment 4 – Lesson Plan</b>	20%
<b>Final Exam</b>	15%

### **Grading Scale**

A+	100	A	99-95	A-	94-90		
B+	89-87	B	86-84	B-	83-80		
C+	79-77	C	76-74	C-	73-70		
D+	69-67	D	66-64	D-	63-60	F	<60
S/P	100-80	U/F	<80				

Grades will be assigned on the basis of both process and product. Late work will not be accepted unless you have made special arrangements with me before the class it is due.

### **ASSIGNMENT SUBMISSIONS & RETURNS**

All assignments should be submitted as directed in class. We will use M+Box or Canvas to submit formal assignments. Major assignments will all be submitted and returned on Canvas. Do not submit assignments via email or other software apps (Google Drive, etc.).

### **PROFESSIONALISM & CLASSROOM CITIZENSHIP**

Attendance and participation are expectations in this class as a form of professionalism. You are expected you to attend every class, to arrive on time for a prompt start and to stay until the end. There are three acceptable reasons for missing class: illness, family or personal emergency, religious holiday. If you cannot be present for a class session, please email me prior to the class session.

#### *Absences for Religious Observances*

Although the University of Michigan, as an institution, does not observe religious holidays, it has long been the University's policy that every reasonable effort should be made to help students avoid negative academic consequences when their religious obligations conflict with academic requirements. Absence from classes or examinations for religious reasons does not relieve students from responsibility for any part of the course work required during the period of absence. Students who expect to miss classes, examinations, or other assignments as a consequence of their religious observance shall be provided with a reasonable alternative opportunity to complete such academic responsibilities. It is the obligation of students to provide faculty with reasonable notice of the dates of religious holidays on which they will be absent.

In accordance with this university policy, please let me know via e-mail during the first week of class if you will miss any classes for religious reasons.

#### *Assignment Completion & Make-Up Work for Missed Classes*

It is expected that you complete all assigned readings and assignments for days that you miss. That means that you should turn in any written assignment on the day of the class you will miss, that you should read the assigned materials, and that you read through any presentation slides or handouts for the class (posted on the class Canvas sites). While it will not be possible to recreate a missed class, please make arrangements with me to complete alternative work that will support the learning you missed. I will specify the due date for this alternative assignment.

### Late assignment submissions

I expect all assignments to be completed by the due date. When assignments are submitted late, it is difficult for me to honor our commitment to all of my students to return assignments in a timely fashion and to provide useful feedback. *Missed and/or late assignments will have a negative impact on your grade. Without prior notice, late work may not be accepted at all, and even with prior notice, grades may drop 10% points each day late.*

### Consequences for Multiple Absences

More than one absence from the class will make successful learning of the material in the course challenging and put you in danger of not being able to complete the course successfully. The Teacher Education Office will be notified if you incur more than one absence. Participation points will be deducted for absences and late arrivals. Two absences—excused or unexcused—are grounds for failing this course.

### Participation

Active participation includes being prepared for classroom discussions and activities by completing all readings and assignments and contributing to whole group and small group discussions. As teachers we expect you to model these dispositions. Lateness, absence, and lack of preparation for classroom activities often have a negative impact on your learning experiences and those of your classmates. As such, I expect you to come to class on time and prepared.

### Personal Technology Use

Appropriate use of electronic devices is a part of your professional responsibility in our class. Using laptops or cell phones as tools for your learning is acceptable, as long as it is not distracting to you, your colleagues or your instructor(s). Examples of acceptable use of electronic devices include making records of your practice and consulting resources for work in class. Non-instructional texting, phone calls, social networking, shopping, and other non-instructional use of these devices during class is unacceptable, and will result in a reduction in your participation grade. If you are concerned about your ability to meet this professional expectation, please discuss your concern with your instructor. Please let us know if there is an emergency that affects your need for using a phone during class time.

## **GENDER PRONOUNS**

All people have the right to be addressed and referred to in accordance with their personal identity. In this class, we will share the name we prefer to be called and, if we choose, share the pronouns with which we would like to be addressed. Teaching interns can indicate their personal pronouns via Wolverine access, using the *Gender Identity* tab under *Student Business*. As instructors, we will do our best to address and refer to all teaching interns accordingly and support classmates in doing so as well.

## **RACKHAM ACADEMIC AND PROFESSIONAL INTEGRITY POLICY**

The University is an academic community which students join of their own volition. As members of this community, and as future leaders in research and the professions, all Rackham students are expected to take personal responsibility for understanding and observing the following standards of academic and professional behavior that safeguard the integrity of the academic mission of the University.

Misconduct in the pursuit of scholarship and research includes at least the following major offenses:

- Cheating
- Plagiarism and other misappropriation of the work of another
- Falsification of Data
- Improperly obtaining or representing laboratory or field data
- Obstruction of the academic activities of another
- Aiding or abetting academic misconduct

See the following website ([http://www.rackham.umich.edu/policies/academic\\_policies/](http://www.rackham.umich.edu/policies/academic_policies/)) for a more extensive list of violations along with explanations of each as well as how allegations of misconduct will be handled if they occur.

### **Accommodations for Students with Disabilities**

If you think you need an accommodation for a disability, please let me know at your earliest convenience. Some aspects of this course, the assignments, the in-class activities, and the way the course is usually taught may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Office of Services for Students with Disabilities (SSD) to help us determine appropriate academic accommodations. SSD (734.763.3000; [ssd.umich.edu](http://ssd.umich.edu)) typically recommends accommodation through a Verified Individualized Services and Accommodations (VISA) form. Any information you provide is private and confidential and will be treated as such.

### **SUPPORT SERVICES**

#### **Office of Services for Students with Disabilities** <http://ssd.umich.edu/>

Offers selected student services which are not provided by other University offices or outside organizations. Services are free of charge. Assists students in negotiating disability-related barriers to the pursuit of their education. Strives to improve access to University programs, activities, and facilities for students with disabilities.

**Location:** G-664 Haven Hall 505 South State Street

**Hours:** 8:00AM-5:00PM Mon-Fri

**Phone:** (734) 763-3000

**E-mail:** [ssdoffice@umich.edu](mailto:ssdoffice@umich.edu)

#### **Mental health support resources**

University of Michigan is committed to advancing the mental health and wellbeing of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, contact Counseling and Psychological Services (CAPS) at (734) 764-8312 and <https://caps.umich.edu/> during and after hours, on weekends and holidays, or through its counselors physically located in schools on both North and Central Campus. You may also consult University Health Service (UHS) at (734) 764-8320 and <https://www.uhs.umich.edu/mentalhealthsvcs>, or for alcohol or drug concerns, see [www.uhs.umich.edu/aodresources](http://www.uhs.umich.edu/aodresources). For a listing of other mental health resources available on and off campus, visit: <http://umich.edu/~mhealth/>.

#### **Counseling and Psychological Services** <http://www.umich.edu/~caps/>

Offers a variety of support services aimed at helping students resolve personal difficulties and strengthen the skills, attitudes and knowledge that will enable them to take full advantage of their experiences at the University of Michigan.

**Location:** Third floor of the Michigan Union (Room 3100)

**Hours:** 8:00AM-7:00PM Monday-Thursday and 8:00AM-5:00PM Friday

**Phone:** (734) 764-8312

#### **Support for students experiencing food insecurity**

Any student who faces challenges securing food, housing or other basic needs and believes this may affect their performance in the course is urged to contact the Dean of Students Office (734-764-7420; [deanofstudents@umich.edu](mailto:deanofstudents@umich.edu); 609 Tappan Street) for support.

#### **ITCS Computing Assistance Hotline** <http://its.umich.edu/help/>

Provides support for various computer resources and services at the University of Michigan.

**Monday–Friday:** 7:00 a.m.–6:00 p.m.

**Sunday:** 1:00 p.m.–5:00 p.m. (email only)

(734) 764-HELP

**Sweetland Writing Center** <http://www.lsa.umich.edu/sweetland/>

The Sweetland Writing Center offers a variety of writing courses and support for graduate students.

Sweetland Writing Workshop faculty offer skillful, supportive advice to graduate students as they draft their course papers, projects, and theses. We act as an interested outside audience, direct students to resources, and give specific suggestions about organization, disciplinary modes, evidence, clarity, grammar, and style.

Graduate students may schedule one 60-minute appointment per week, with a limit of seven (7) visits during fall and winter terms including walk-ins. During spring and summer half-terms, the limit on visits is four (4) including walk-ins.

**Location:** 1310 North Quad

**Hours:** For hours each semester, click on *Schedule a Writing Workshop Appointment* under the “For Students” tab. **Avoid waiting until the last minute to schedule appointments so you can get your work read in a timely manner.**

**Phone:** (734) 764-0429

**Email:** [sweetlandinfo@umich.edu](mailto:sweetlandinfo@umich.edu)

Category	A	A-	B+	B	B-	C+	C* or Below
<b>Attendance</b>	Attended EVERY class session on time and stayed for the entirety of each class session.	Attended EVERY class session. No more than one modest tardy and no more than one early departure of a modest nature.	Attended EVERY class session. No more than two modest tardies and no more than one early departure of a modest nature.	Missed a single class session (for an “excusable” reason). No more than two modest tardies and no more than two early departures of a modest nature.	Missed a single class session. Attended the majority of classes on time, had no excessive tardies and stayed for the entirety of each session that you were in attendance.	Missed two class sessions (with at least one of the absences being for an “excusable” reason). Tardiness was noticeable and left some class sessions early.	Missed two or more class sessions without an “excusable” reason. Tardiness was frequent and left some class sessions early.
<b>Preparation</b>	←----- -----	←----- -----	Required readings or math problems appropriately highlighted, marked, and/or contained written comments to facilitate easy reference to specific content when warranted. Additionally or alternatively has companion hand-written notes on hand to reference.	----- ----→	----- ----→	----- ----→	No evidence of reading or completed math problems.
<b>Contributing to Whole</b>			Contributed on a regular basis to whole class	Verbal contributions helped build	Verbal contributions helped build	Infrequently or rarely participated in	

Category	A	A-	B+	B	B-	C+	C* or Below
<b>Classroom Dialogue, Analysis, and Deliberation</b>	←----- ---	←----- ---	discussions and contributions helped build collective understanding of the course content	collective understanding of the course content but gained moment in contributing to class discussion over the course of the semester.	collective understanding of the course content but participation was inconsistent across the semester.	class discussion	-----→
<b>Small Group</b>	←----- ---	←----- ---	Regularly drew from and referenced course readings as warranted in whole group, small group, or individual activities.	----- ----→	Sometimes drew from and referenced course readings as warranted in whole group, small group, or individual activities.	----- ----→	Rarely drew from and/or reference readings as warranted/appropriate in whole group, small group or individual activities.
<b>Use of readings</b>	References to readings consistently demonstrated a strong command of authors' main argument(s) and ability to attend to details and nuances in text as applicable.	References to readings often demonstrated a strong command of the authors' main argument(s) and ability to attend to details and nuances in text as applicable.	References to readings indicated a basic command of authors' main argument(s) and could attend to details and nuances in text as warranted for class	References to readings regularly indicated a rudimentary understanding of authors' main argument(s) but sometimes struggled to make use of relevant	----- ----→	References to readings sometimes conveyed that authors' main argument(s) were misconstrued or taken out of context.	-----→  -----→

Category	A	A-	B+	B	B-	C+	C* or Below
<b>Listening</b>	When contributing to class discussion, your commentary consistently indicated that you were listening intently to your peers and were responding directly to, building upon, departing from or asking clarification about what your peers had contributed to the discussion.	←----- -----	discussion.  When contributing to class discussion, your commentary often indicated that you were listening intently to your peers and were responding directly to, building upon, departing from, asking and/or asking clarification about what your peers had contributed to the discussion.	details or nuances in text as warranted for class discussion.  ----- ---→	When contributing to class discussion, your commentary rarely indicated that you were listening intently to your peers and were responding directly to, building upon, or asking clarification about what your peers had contributed to the discussion.	----- ---→	