

**WUS 050 – Water Math and Hydraulics Syllabus  
(Proposed Spring 2012—Jan 24 to May 15, 2012 Syllabus)**

**Ticket # 54429 -- 7:00-10:10 Tuesdays, Room U-92**

Office Hours: Room U-83—Mon 3:20-5:20PM, Tue 5:00-7:00 PM, Wed. 4:45-5:15 PM, &  
Thur 6:15 –6:45PM

Dr. Jim Gates – (714) 628-4836, email [gates\\_jim@sccollege.edu](mailto:gates_jim@sccollege.edu)

webpage: [www.sccollege.edu/water](http://www.sccollege.edu/water) , [www.sccollege.edu/jgates](http://www.sccollege.edu/jgates)

Go to: Water licensing information at:

<http://www.cdph.ca.gov/certlic/occupations/Pages/DWopcert.aspx>

Course description: A review of general mathematics and its application to water utility science. Special terminology and units as applied to water utility science operations are stressed. Introduction to hydraulics of water flow in pipes, reservoirs, pumps, flumes and related facilities. Completion of Mathematics N06 or equivalent skills as measured by the Math Level 1 Exam recommended. This course may not be repeated.

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Student Outcomes: 1. Be able to apply lineal concepts of mathematics to water supply issues.  
2. Be able to accurately use at least fifteen water related formulas listed on a conversion sheet provided by the Department of Public Health.

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Text: *Applied Math for Water Distribution, Treatment and Wastewater Operators* (2005).  
by James L. Gates, Ed.D. Available in the college bookstore or from Kendall/Hunt  
Publishing Company, 4050 Westmark Drive, Dubuque, Iowa 52002

**Weekly Attendance quizzes will be held (3-points each). Please obtain a basic 5 or 6-function calculator with a square root function for use in class.**

<i>DATE</i>	<i>Week</i>	<i>TOPIC</i>
Jan 24	1	Introduction, Scope of course, Text, Certificate program, State exam schedule, Grading policy, finish enrollment, Units of Measure, Terms and Abbreviations ( <b>page xi &amp; 144-45</b> ), Flashcard formulas ( <b>pages 146-48</b> ) <b>Homework: Prepare (35) 3x5 flashcards. Bring ScanTron 882-E for next class</b>
Jan 31	2	Academic Success Center presentation, Preliminary test (ScanTron). Flashcard formulas 146-148. Answer key pages 131-140. Appendix B pages 144-145. Proper, improper, mixed fractions pages 1 & 2. <b>HW:</b> Do exercises 1.1.1, 1.1.2a, & 1.1.3 adding fractions, plus 1.1.4 Subtracting fractions. Review pages 167-176 typical distribution exam math.
<b>Feb 3</b>		<b>Friday Hot Topics class 8 AM to 4:50PM – Backflow Devices (ticket 58002)</b>

## Water Utility Science 050 Tuesday Water Math class Syllabus

<u>Date</u>	<u>Week</u>	<u>Topic</u>
Feb. 7	3	Flashcard activity—(test your neighbor), “Dusting-off the cob webs”, Subtracting fractions (borrowing), <b>Wednesday quiz #1</b> covering previous HW assignments. <b>HW:</b> Ex. 1.1.5 & 1.1.6. Explore opt-out test.
Feb 14	4	<u>Quiz #2</u> (1 <sup>st</sup> 15 flashcard formulas- <b>Monday’s class</b> ). Multiplying and dividing fractions from exercise 1.1.5 & 1.1.6. Multiplying flow units (in-class exercise and handout) Pound formula, cfs to mgd conversion. Decimals point review. <b>HW:</b> Exercises 1.2.3, 1.2.4, 1.2.5, 1.2.6, 1.2.7, 1.2.8 & 1.2.9 logic check; check out the Academic Success Center (ASC) for Plato extra credit, room D-209
Feb 21	5	Pound formula, unit conversions, flashcard applications in-class, Exercise 1.2.11 & 1.3.4, & word problems (1.3.5) on page 25. Circle principle info & destination. <b>Quiz #3.</b> (logic check) Percents & Word problem checks- <b>Wednesday</b> <b>HW:</b> Exercises 1.4.1, 1.4.2, 1.4.4, 1.5.1, 1.5.2, & 1.5.3. Go to: ASC Room D-209
Feb 28	6	Percent follow-up and review. Review flashcard formulas, Solving for unknowns page 33, logic wording, percents; ratios, & proportions. In-class exercise 1.7.1 & 1.7.2 <b>Quiz #4</b> (selected problems in ex. 1.5.1 percents) <b>HW:</b> Do exercise 1.6.1, 1.6.2 and Appendix B4 pages 154-155
<b>Mar 1</b>		<b>Deadline to make application for the Water Treatment Exam on May 19</b>
Mar 6	7	Solving unknowns, proportions page 36, Metric system (pg 43) & Unit conversions & UDA. In-class activity -- Do all problems in Ex. 2.4.1, Do even numbered problems in Ex. 2.4.2 Conversions. Drawing a "road map". <b>HW:</b> Geometric shapes -- Read pages 49-54, Do Ex. 3.1.1 numbers 1C, 2C, 3C & 4C
Mar 13	8	<b>Quiz #5</b> (selected ex. 2.4.2), UDA “road mapping” and Applied math Jeopardy! <b>HW:</b> Review past quizzes and all given flashcard formulas
<b>Mar 17</b>		<b>Saturday</b> – Distribution Exams administered by the Department of Health Services
Mar. 19-23		<b>Spring Break</b>
Mar 27	9	Review quizzes, road mapping, flashcards, homework assignments Course review, Geometric shapes & associated flashcard formulas. <b>HW:</b> Flashcard formula applications for numbers 16-35. Review practice midterm type questions.
Apr 3	10	<b>Review typical exam questions and take the Practice midterm exam</b>

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<u>Date</u>	<u>Week</u>	<u>Topic</u>
Apr 17	11	<b>Midterm exam</b>
<b>Apr 20</b>		<b>Drop deadline.</b> This has to be done ON-LINE! <i>Student's responsibility to drop if missed two or more class sessions. If student has other scheduling issues, they should drop by this date OR get an "F" if they fail to attend beyond this date.</i>
<b>Apr. 24</b>	<b>12</b>	<b>Midterm examination review --</b> Flashcard application 16-21 <b>HW:</b> Review Appendix B6 & B7 pages 159-163
May 1	<b>13</b>	Solving typical distribution math problems, review Appendix B8 pg 164 Volumes and shapes page 57-59. Do ex. 3.2.1 (items 2 & 4), and even numbers for ex. 3.2.2 in-class. Detention Times. <b>HW:</b> read pages 64-66 do even numbers in ex. 4.2.1
Apr 27		Friday – Treatment Test Prep, ticket 57716 (optional) – DPH test May 19.
May 8	<b>14</b>	<b>Quiz #6</b> (selected questions from exercise 4.2.1) Pressures and velocities. Typical Grade 1 & 2 Treatment questions. (See pages 90-94) Complete in-class handout. Typical Grade 2 math (see pages 95-108) Complete in-class handout. Blends and CT <b>HW:</b> Read pages 70-72 do ex. 5.2.1 even numbers
May 7/9	<b>15</b>	Review past quizzes and post-test (compare with preliminary test) Review fractions, decimals, ratios, and unit conversions. Pound formula, UFRV and backwash rates. <u>Quiz #6</u> (covering fractions, decimals, ratios, and conversions) Extra credit night. In-class assignments to boost grades. Testing from fractions, decimals, to word problems and complex water math problems. Course review and Practice Final Examination on Wednesday. <b>HW:</b> Practice water treatment T1 & T2 examinations on pages 90-109
May 15	<b>16</b>	Final examination

<u>Grading policy:</u>			
	Quizzes	30%	A = 90-100%
	Midterm	40%	B = 80-89%
			C = 65-79%
	Final	30%	D = below 64%

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Extra credit may be granted for missed quizzes, however, make-up quizzes will not be allowed. Prior arrangements are required to determine extra credit. Extra credit will apply only for borderline cases. Extra credit can be granted for logging time into the Student Success center in the D-building. A maximum of 30-points may be granted after completing six-mastery sections. See or call instructor *during office hours*.

Tutoring available: Call and make appointments. 1-714-743-1756 Assisting students in developing better study habits can also be obtained at the tutoring center U-80. Call for appointments.

Incomplete grades will not be granted unless a sudden catastrophic event occurs. Students should arrange vacation times to avoid attendance problems. Students should make arrangement for personal transportation to attend field trips, if needed.

A student has to receive a "C" letter grade or better for each class to qualify for a program certificate of completion. Seven class completions are required for a specific certificate in the Water Utility Science program. See program brochure for details.

The hallmark of any class is regularly **attending** and performing **homework assignments**. Communication between the instructor and student is essential for success. Additional assignments may be given to students who cannot avoid an absence due to work. The college policy is, if you miss three consecutive class sessions, the instructor may drop you. Students are reminded that career educational classes are regular college courses and are not seminars. As such, note taking is essential. If assistance is needed in how to take class notes, please notify instructor. Tests will be developed from text and class notes.

Cell phones: Please notify instructor at the beginning of class if you are on call at work. All others shall place phone on vibrate or off during class. No text messaging in class. Cell phones *cannot* be used during any quiz or exam.

Laptop computer use. Please obtain instructor's permission before class if you plan to turn a laptop on in class. iPods are not allowed in class.

All college classes require that a student read assigned materials before class. For every hour in class, assignments are to cover 2-hours outside the class. A 3-unit course requires at least 6-hours of study outside of class.

### Accommodations for Disabilities:

Students with verifiable disabilities who want to request academic accommodations are responsible for notifying their instructor and Disabled Students Programs and Service (DSPS) as early as possible in the semester. To arrange for accommodations, contact DSPS by phone (628-4860) or (714-639-9742 – TTY for deaf/hearing impaired) or stop by the DSPS center (E-105) newly located in the "E" building on the first floor.