

## MICR 1010 Section 01 (Tuesdays) and 06 (Thursdays)

### **Bitah Bahrami, MS**

California State University, Los Angeles

College of Natural and Social Sciences

#### **INSTRUCTOR INFORMATION**

**Lecture Instructor:** **Bitah Bahrami**  
**Email:** [bbahram4@calstatela.edu](mailto:bbahram4@calstatela.edu) or [bbahramio@gmail.com](mailto:bbahramio@gmail.com) Mondays  
**Office Hours:** and Wednesdays 11 – 12pm or by appointments Palmer wing  
**Office Location:** library 2097

#### **Lecture Class Days/Time:**

Section 01 (Meets Face-to-Face on Tuesdays only 10:10–  
11:00 AM) KHD2072  
Section 06 (Meets Face-to-Face on Thursdays only 10:10 –  
11:00 AM) KH D2072

**Lab Instructors:** **Bitah Bahrami** ([bbahram4@calstatela.edu](mailto:bbahram4@calstatela.edu) or [bbahramio@gmail.com](mailto:bbahramio@gmail.com))  
OH and location: Mondays and Wednesdays 11am – 12pm or by appointments  
Palmer wing library 2097

**Shakila Rahman** ([srahma18@calstatela.edu](mailto:srahma18@calstatela.edu))  
OH and location: Tuesdays 11am-1pm in Library Palmer wing 2097

**Mohamed Maged Youssef** ([myousse7@calstatela.edu](mailto:myousse7@calstatela.edu))  
OH and location: Mondays and Wednesdays 9:40am-11:00am BIOS 262

#### **Lab Class**

**Days/Time:**  
02 T/R 11:00-12:15 ASCL 226 (Shakila Rahman)  
03 T/R 8:30-9:45 ASCL 226 (Bitah Bahrami)  
04 T/R 12:30-1:45 ASCL 226 (Bitah Bahrami)  
05 T/R 2:00-3:15 ASCL 226 (Mohamed Maged Youssef)  
07 T/R 11:00-12:15 ASCL 226 (Mohamed Maged Youssef)  
08 T/R 12:30-1:45 ASCL 266 (Mohamed Maged Youssef)  
09 T/R 2:00-3:15 ASCL 266 (Shakila Rahman)  
10 T/R 3:30-4:45 ASCL 266 (Shakila Rahman)

## **COURSE DESCRIPTION / GE CATEGORY**

Introductory course in microbiology designed for non-majors; content addresses the impact of microorganism on the human experience and the biosphere; laboratory application of selected procedures. No credit if taken after any other college microbiology.

## **COURSE OBJECTIVES / OUTCOMES**

1. Learn how microbes affect our world
2. Recognize the diversity and ubiquity of microbes
3. Appreciate our relationship with microbes
4. Identify microbial structures and their functions
5. Understand the factors that control microbial growth
6. Appreciate the benefits of microorganisms in industrial, agricultural, environmental, biotechnological and food science processes
7. Understand the role microbes play in disease

Furthermore, consistent with expectations from the lower division General Education in the Natural Sciences students will also:

1. Think critically about experiments involving microbes.
2. Recognize when and what information is needed as related to microbiology.
3. Develop the ability to locate relevant information and evaluate its validity.
4. Extract accurate information related to microbiology from everyday sources.
5. Disseminate learned material by both oral and written communication methods.
6. Demonstrate an ability to work collaboratively
7. Demonstrate effective reading of primary and secondary sources of scientific information
8. Learn effective oral and written communication of scientific content
9. Integrate scientific knowledge into their everyday lives through project-based experiences.

## **REQUIRED COURSE MATERIALS**

MICR 1010 Laboratory Exercises Manual (compiled by TM Salmassi)

Optional: Microbiology from OpenStax, ISBN 1938168143, [www.openstax.org/details/microbiology](http://www.openstax.org/details/microbiology)

Good news: The textbook for this class is available for free online, in web view and PDF format! You can also purchase a print version, if you prefer, via the campus bookstore or from OpenStax on Amazon.com. You can use whichever formats you want. Web view is recommended--the responsive design works seamlessly on any device. If you buy on Amazon, make sure you use the link on your book page on openstax.org so you get the official OpenStax print version. (Simple printouts sold by third parties on Amazon are not verifiable and not as high-quality.)

## **CLASSROOM PROTOCOL**

MICR 1010 is designed to introduce students to microbiology and engage them as active participants in the scientific thinking and learning process. There is NO textbook for the lecture portion of this course and students are expected to develop their information literacy skills by looking up the terminology introduced in this course.

Additional lecture content will come from assigned article readings. These readings will be made available to students via [Canvas](#). Canvas allows faculty and students online access to sophisticated instructional tools:

discussion boards, assignments, wikis, blogs, online quizzes, file distribution, and more. You need to visit the Canvas website and become familiar with the interface. There is a REQUIRED laboratory manual for the course. All laboratory exercises and content are provided in this manual.

Cell phones must be turned off during the class time. Use of personal computers during class is restricted to course related activities only. Personal uses such as visiting social media sites, checking email, working on requirements for other classes, or browsing the Internet are not allowed. *Attendance will be taken on occasion so don't be late and don't miss class.*

### **COURSE STRUCTURE**

This course is conducted in a hybrid format. You will participate in the course using Canvas for all the ONLINE content. We will hold one face-to-face (F2F) lecture and one online lecture each week.

Laboratory exercises will be held twice each week as there is no online component to the labs.

### **COMPUTER REQUIREMENTS**

You will need to have an up-to-date browser, operating system and some additional software on your computer to take this class. Check the [ITS Helpdesk Student Resources page](#) for instructions. Some of the documents in this course will be available to you in PDF form. You will need to download and install [Adobe Acrobat Reader software](#) on your computer.

### **LABORATORY REQUIREMENTS**

Students must provide their own laboratory coat and permanent marker. These items can be purchased at the student bookstore. Laboratory attendance is required.

Experiments build on prior experiments so when you miss class you not only miss the content from that class but you put yourself at a disadvantage for other classes. Upon completion of laboratory experiments, you will complete the homework associated with each laboratory exercise. These homeworks are due at the start of the next lab to your lab instructor. Deadlines are also listed in the laboratory schedule at the end of this document. Please be mindful of report deadlines.

### **ASSIGNMENTS AND GRADING POLICY**

This course has both lecture and laboratory assignments. All assignments are either listed in the class schedule at the end of this document or will be announced in class or via Canvas along with any due dates or rubrics. You can view your grades at any time on Canvas and are encouraged to do so regularly. Laboratory homeworks are due in person on the dates shown in the schedule. You must turn in your completed lab homework to your lab instructor at the START of class. Lab homework submitted after the first 10 minutes of lab are considered "LATE" and will lose half the credit. Lab homework not submitted to your lab instructor on the due date will NOT be accepted. Please stay on top of these homeworks as they are very important to your grade. Do NOT use laboratory time to complete the lab homework.

Lecture assignments have due dates published via Canvas. Once these assignments close, they will NOT be reopened, NO EXCEPTIONS. All Canvas assignments are due on Sunday nights. There are two projects in this course. Details for these projects will be announced in lecture. No late projects are accepted. An online lecture quiz has to be taken after each online lecture. Class activities are mandatory and happen in class. There are 4 mandatory Student participations that take place during weeks 12-15.

### **Reading Assignments**

1. Koch, R. (1876). Untersuchungen ueber Bakterien V. Die Aetiologie der Milzbrand-Krankheit, begruendend auf die Entwicklungsgeschichte des Bacillus Anthracis. Beitr. z. Biol. D. Pflanzen 2: 277-310. *Milestones in Microbiology, 1556.*
2. Wakefield, Andrew J., et al. (1998) "RETRACTED: Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children." *The Lancet* 351.9103:

3. Taylor, Brent, et al. (1999) "Autism and measles, mumps, and rubella vaccine: no epidemiological evidence for a causal association." *The Lancet* 353.9169: 2026- 2029.
4. Doolittle, W.F. (February 2000). Uprooting the tree of life. *Scientific American* 282 (2): 90-95.
5. McGee, H. (2011, Aug 24). Bending the rules on bacteria. *New York Times*, pp. 3-D.3.
6. Pollan, M. (2013). Some of my best friends are germs. *New York Times Magazine: MM36. May, 15.*
7. Williams, C. (July 2011). Who are you calling simple? *New Scientist* 211 (2821):38- 41.
8. Woese, C.R. (2012, December 31). Archaeobacteria: The Third Domain of Life Missed by Biologists for Decades. *Scientific American*
9. Carroll, S. B. (2012, Jun 26). 'Nature's masons' do double duty as storytellers. *New York Times*, pp. 2-D.2.
10. Madigan, M.T. and B.L. Marrs. (April 1997). Extremophiles. *Scientific American* 277 (1): 82-87.
11. Villarreal, L.P. (December 2004). Are Viruses Alive? *Scientific American* 291 (6): 100-105.
12. Fleming, A. (1929). On the antibacterial action of cultures of a Penicillium, with a special reference to their use in the isolation of B. influenzae. *Brit. J. Exp. Path.* 10: 226-236 In *Milestones in Microbiology: 1556 to 1940*, translated and edited by Thomas D. Brock, ASM Press. 1998, p185
13. Levy, S.B. (March 1998). The Challenge of Antibiotic Resistance. *Scientific American* 278 (3): 46-53.
14. Pringle, P. (2012, Jun 12). Notebooks shed light on an antibiotic's contested discovery. *New York Times*, pp. 3-D.
15. Garcon, N. and M. Goldman. (October 2009). Boosting Vaccine Power. *Scientific American* 301 (4): 72-79.
16. Nemeck, S. (April 2001). Does the World Need GM Foods? *Scientific American* 284 (4): 62-65.
17. Stix, G. (June 1993). Red Banner Burger. *Scientific American* 268 (6):132-135.
18. Antibiotic Resistance – Pew Charitable Trust
19. Barringer, F. (2012, Feb 10). As 'yuck factor' subsides, treated wastewater flows from taps. *New York Times*, pp. 1-A.1
20. Mallin, M.A. (June 2006). Wading in Waste. *Scientific American* 294 (6):52-59.
21. Robbins, J. (2012, Jul 15). Man-made epidemics. *New York Times*, pp. 1-SR.1.
22. Stewart, P.S. and J.W. Costerton (July 2001). Antibiotic resistance of bacteria in biofilms. *Lancet* 358 (9276): 135-138.

Reading assignments are provided in the lecture and lab schedule at the end of this document. Please follow the assignments as listed. You must complete the reading PRIOR to coming to class on the day it is assigned.

## GRADING BREAKDOWN

<b>Assignments – Lecture (530 points)</b>	<b>Points</b>
Canvas Quizzes (13)	130
Class activities (5)	50
Canvas Worksheet (30 pts, to be turned in class)	30
Lecture Exams (2 exams, 50 pts ea)	100
Lecture Final (1)	100
Student Group (Project 1) (3-5 students)	100
Student Participation (4)	20
<b>Assignments – Lab (470 points)</b>	
Laboratory homework (20, 5 pts each)	100
Post-lab quizzes on Canvas (20, 5 pts each)	100
Laboratory Exams (2, 50 pts ea)	100
Laboratory Final (1)	100
Lab Presentation (Project 2) (per pair)	70
<b>Total</b>	<b>1000</b>

## GRADING SCALE

<b>A:</b>	<b>92% or more</b>
A-:	90% - 91.9%
B+:	88% - 89.9%
B:	82% - 87.9%
B-:	80% - 81.9%
C+:	78% - 79.9%
C:	65% - 77.9%
C-:	59% - 64.9%
D:	50%-58.9%
F	less than or equal to 49.9%

## COURSE COMMUNICATION

I will make every effort to communicate frequently with students through announcements and postings within the Canvas site. Questions can be sent via email or Canvas Message.

As a student, you should expect to receive assignment feedback and responses to postings within 48 hours.

Additionally, your lab instructor will announce their office hours and contact information. Make sure to take down this information.

## HELPFUL STUDENT RESOURCES

### Technical Resources

Information on CSULA technical support resources for students: [Technical Support](#)

#### Student Support Services

Information on CSULA student support resources for students: [Student Services](#)

#### Academic Support Services

Information on CSULA academic support resources for students: [Academic Support](#)

Canvas (<http://www.calstatela.edu/cetl/edtech/canvas>)

Information for students on how to be a successful online student and how to use Canvas: [Canvas Mentor](#) (Canvas Tutorials)

## COURSE AND UNIVERSITY POLICIES

### Student Handbook

Information on student rights and responsibilities, academic honesty, standards of conduct, etc., can be found in Schedule of Classes for the current quarter visit the Cal State LA [Schedule of Classes Information](#) under Policies and Procedures.

### Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. Students should be aware of the current deadlines and penalties for adding and dropping classes by visiting the [GET home page](#). (Registrar news and information)

### Americans with Disabilities Act (ADA)

Reasonable accommodation will be provided to any student who is registered with the Office of Students with Disabilities and requests needed accommodation. For more information visit the [Office for Students with Disabilities](#) home page. <http://web.calstatela.edu/univ/osd/atlc.php>.

### Academic Honesty/Student Conduct

Many incidents of plagiarism result from students' lack of understanding about what constitutes plagiarism. However, you are expected to familiarize yourself with Cal State L.A.'s policy on plagiarism. All work you submit must be your own scholarly and creative efforts. Cal State L.A. plagiarism as follows: "At Cal State L.A., plagiarism is defined as the act of using ideas, words, or work of another person or persons as if they were one's own, without giving proper credit to the original sources." Please refer to the following resources regarding the Academic Policy ([Cal State LA Policies and Procedures on Academic Honesty definitions](#)) and Student Conduct ([Appendix E - Student Conduct / Student Conduct Procedures](#)).

Make sure you all follow the schedule for all due assignments. Students are only allowed to catch up with 2 missed quizzes in Lecture, and 2 missed quizzes in lab in the entire semester. No more than 2 quizzes per lecture and 2 quizzes per lab will be open by the instructors.


### LECTURE Schedule (Face to Face: F2F, and Online)

- Lecture quizzes are on Canvas (lecture section page), and about online lectures: open every Tuesday at 5am and close every Sunday at 11:55pm
- All lecture exams are in class and on Scantron 882E. Only lecture Final is online!
- Class activities in lecture are worth 10 points each so be present!
- Group presentations in lecture are 7- minutes long, done per groups of 3-5, on a topic in Microbiology.
- \*Student participations during group presentations in lecture are mandatory, worth 5 points each for a total of 20 points
- 3 Extra credit opportunities (Lecture quizzes) will be available on Canvas (5 pts each)!!

WEEK		Lecture Topic	Assignment (Due)
1 8/20 – 8/22	F2F	Enrollment Course Introduction & Canvas Tour Lecture: What is microbiology?	
	Online	Review Syllabus	<b>Canvas:</b> Syllabus Quiz
2 8/27 – 8/29	F2F	Good Science/Bad Science (Bad Science TED Talk: Ben Goldacre)	<b>Reading:</b> Wakefield, A.J. et al. (1998). Taylor, B. et al. (1999).
	Online	Microbiology – Historical Perspective	<b>Reading:</b> Koch, R. (1876). <b>Canvas:</b> Microbiology – Historical Perspective Quiz
3 9/3 – 9/5	F2F	Survey of Microbial Life & class activity 1	
	Online	Meet microscopic life in your home (Anne Madden)	<b>Canvas:</b> Meet microscopic life in your home Quiz
4 9/10 – 9/12	F2F	Bacteria/Structure and Function	<b>Reading:</b> McGee, H. (2011). Pollan, M. (2013). Williams, C. (2011)
	Online	Tree of life	<b>Reading:</b> Doolittle, W.F. (2000). <b>Canvas:</b> The Tree of Life Quiz

5 9/17 – 9/19	F2F	Introduce Students' projects & Students' group meeting & class activity 2	
	Online	Algae Protists	<b>Reading:</b> Doolittle, W.F. (2000). <b>Canvas:</b> Algae Quiz & Protists Quiz <b>Canvas:</b> Extra credit questions quiz-practice for lecture exam 1 (5 points)
6 9/24 – 9/26	F2F	Lecture exam 1	
	Online	Mysterious microbes living deep inside earth (Karen Lloyd)	<b>Reading:</b> Madigan, M.T. and B.L. Marrs. (1997) <b>Canvas:</b> Mysterious microbes living deep inside earth Quiz
7 10/1 – 10/3	F2F	Viruses & class activity 3	<b>Reading:</b> Villarreal, L.P. (2004).
	Online	Fungi	<b>Canvas:</b> Fungi – Quiz
8 10/8 – 10/10	F2F	Microbial control & class activity 4	<b>Reading:</b> Fleming, A. (1929). Levy, S.B. (1998). Pringle, P. (2012, Jun 12).
	Online	These bacteria eat plastic (Morgan Vague)	<b>Canvas:</b> These bacteria eat plastic Quiz
9 10/15 – 10/17	F2F	Food Microbiology & class activity 5	
	Online	How viruses can help in the fight against superbugs. (Alexander Belcredi)	<b>Worksheet due in class</b> Vaccines <b>Canvas:</b> how viruses can help in the fight against superbugs Quiz
10 10/22- 10/24	F2F	The Immune System	
	Online	Review	<b>Canvas:</b> Extra credit questions quiz-practice for lecture exam 2 (5 points)
11 10/29 – 10/31	F2F	Lecture exam 2	
	Online	Get ready for group presentations	




<b>12</b> 11/5- 11/7	F2F	Student Presentations I & student participation*	
	Online	Microbial Ecology	<b>Canvas:</b> Microbial Ecology Quiz
<b>13</b> 11/12 – 11/14	F2F	Student Presentations II & student participation*	
	Online	What do we do when antibiotics don't work anymore (Maryn McKenna)	<b>Canvas:</b> What do we do when antibiotics don't work anymore Quiz
<b>14</b> 11/19 – 11/21	F2F	Student Presentations III & student participation*	
	Online	Microbes in Agriculture	<b>Canvas:</b> Microbes in agriculture Quiz
<b>Fall Recess and Thanksgiving</b> 11/26 – 11/28		<b>No classes</b>	
<b>15</b> 12/3 – 12/5	F2F	Student Presentations IV & student participation*	
	Online	Review time	<b>Canvas:</b> Extra credit questions quiz-practice for lecture Final (5 points)
<b>16</b> 12/10 – 12/12	F2F	No class	
	Online	Lecture Final exam	<b>Canvas:</b> Lecture Final opens on 5/14/2019 at 5am and closes same day at 11:55pm.

## Laboratory Schedule (Face to Face only)

- Post-Lab quizzes are on Canvas (lab section page): open every Thursday at 5pm and close every Sunday at 11:55pm)
- All Labs exams are in class and on Scantron 882E.
- All Lab homeworks are due on the dates mentioned in the schedule at the beginning of class.
- Lab presentation is 5 minutes long, done per pair during week 14.
- 3 Extra credit opportunities will be given for coming to review sessions before exams (5 pts each)!!

WEEK		Lab Topic	Assignment (Due)
1 8/20 – 8/22	TUE	Enrollment and syllabus tour	
	THU	Lab Safety and Housekeeping	
2 8/27 – 8/29	TUE	Lab #1: Aseptic Technique (Period 1)	<b>Reading:</b> lab #1: Aseptic Technique
	THU	Lab #1: Aseptic Technique (Period2) Lab #2: Pure Culture Techniques	<b>Reading:</b> Lab #2: Pure Culture Techniques <b>Lab homework due:</b> Lab #1: Aseptic Technique Post lab quiz: Lab 1
3 9/3 – 9/5	TUE	Lab #2: Pure Culture Techniques (Period 2) Lab #3: Brightfield Microscopy	<b>Reading:</b> Lab #3: Brightfield Microscopy
	THU	Lab #4: Microscopy of Pond Water	<b>Reading:</b> Lab #4: Microscopy of Pond Water <b>Lab homework due:</b> Lab #2: Pure Culture Techniques Lab #3: Brightfield microscopy Post lab quizzes: labs 2, 3, 4
4 9/10 – 9/12	TUE	Lab #5: Smear Preparation Lab #6: Simple Staining	<b>Reading:</b> Lab #5: Smear Preparation Lab #6: Simple Staining <b>Lab homework due:</b> lab #4: Microscopy of Pond Water
	THU	Lab #7: Negative Staining	<b>Reading:</b> Lab #7: Negative Staining <b>Lab homework due:</b> Lab #5: Smear preparation Lab #6: Simple Staining Post lab quizzes: labs 5,6,7
5 9/17 – 9/19	TUE	Lab #8: Gram Staining	<b>Reading:</b> Lab #8: Gram Staining <b>Lab homework:</b> Lab #7: Negative Staining

	THU	Lab #9: Capsular Staining	<p><b>Reading:</b> Lab #9: Capsular Staining</p> <p><b>Lab homework due:</b> Lab #8: Gram Staining</p> <p>Post lab quizzes: labs 8, 9</p>
6 9/24 – 9/26	TUE	Lab #10: Spore Staining + Review in class for exam (extra credit opportunity 5 points)	<p><b>Reading:</b> Lab #10: Spore Staining</p> <p><b>Lab homework due:</b> Lab #9: Capsular Staining</p>
	THU	LAB EXAM #1 in class	Post lab quiz: lab 10
7 10/1 – 10/3	TUE	Lab #11: The Fungi: Molds and Yeasts Lab #12: Ubiquity of Bacteria (Period 1)	<p><b>Reading:</b> Lab #11 Fungi Lab #12: Ubiquity of bacteria</p> <p><b>Lab homework due:</b> Lab #10: Spore Staining</p>
	THU	Lab #12: Ubiquity of Bacteria (Period 2)	Post lab quizzes: labs 11,12
8 10/8 – 10/10	TUE	Lab #13: pH and Microbial Growth (Period 1) Lab #14: Water Activity and Osmotic Pressure (Period 1) Lab #15: Temperature (Period 1)	<p><b>Reading:</b> Lab #13: pH and Microbial Growth Lab #14: Water Activity and Osmotic Pressure Lab #15: Temperature</p> <p><b>Lab homework due:</b> Lab #11: Ubiquity of Bacteria Lab #12: The Fungi</p>
	THU	Lab #13: pH and Microbial Growth (Period 2) Lab #14: Water Activity and Osmotic Pressure (Period 2) Lab #15: Temperature (Period 2)	Post lab quizzes: labs 13, 14, 15
9 10/15 – 10/17	TUE	Lab #16: Evaluation of Alcohol (Period 1) Lab #17: Ultraviolet Light: Lethal Effects (Period 1)	<p><b>Reading:</b> Lab #16: Evaluation of Alcohol Lab #17: Ultraviolet Light</p> <p><b>Lab homework due:</b> Lab #13: pH and Microbial Growth Lab #14: Water Activity and Osmotic Pressure Lab #15: Temperature</p>
	THU	Lab #16: Evaluation of Alcohol (Period 2) Lab #17: Ultraviolet Light: Lethal Effects (Period 2)	Post lab quizzes: labs 16, 17

<b>10</b> 10/22- 10/24	TUE	Review in class for exam (extra credit opportunity 5 points)	<b>Lab homework due:</b> Lab #16: Evaluation of Alcohol Lab #17: UV light
	THU	LAB EXAM #2 in class	
<b>11</b> 10/29 – 10/31	TUE	Lab #18: Antimicrobial Sensitivity Testing (Period 1)	<b>Reading:</b> Lab #18: Antimicrobial Sensitivity Testing
	THU	Lab #18: Antimicrobial Sensitivity Testing (Period 2)	Post lab quiz: lab 18
<b>12</b> 11/5- 11/7	TUE	Lab #19: Bacterial Examination of Water (Period 1)	<b>Reading:</b> Lab #19: Bacterial Examination of Water <b>Lab homework due:</b> Lab #18: Antimicrobial Sensitivity Testing
	THU	Lab #19: Bacterial Examination of Water (Period 2)	
<b>13</b> 11/12 – 11/14	TUE	Lab #19: Bacterial Examination of Water (Period 3)	Post lab quiz: lab 19
	THU	Lab #20: Bacterial Counts of Food (Period 1)	<b>Reading:</b> Lab #20: Bacterial Counts of Food
<b>14</b> 11/19 – 11/21	TUE	Lab #20: Bacterial Counts of Food (Period 2)	Post lab quiz: lab 20
	THU	Lab presentations (2-3 students/group)	
<b>Fall Recess and Thanksgiving</b> 11/26 – 11/28		<b>No classes</b>	
<b>15</b> 12/3 – 12/5	TUE	Review in class for exam (extra credit opportunity 5 points)	
	THU	LAB FINAL in class	<b>Lab homework due:</b> Lab #19: Bacterial Examination of Water Lab #20: Bacterial Counts of Food
<b>16</b> 12/10 – 12/12	TUE	No Labs	
	THU	No Labs	