

**Syllabus PHC 6011: Epidemiology Methods II  
(3 credit hours)**

Semester: Summer A, 2024

Course Website: E-Learning in Canvas

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**Instructor**

Name: Catalina Lopez-Quintero MD, PhD

Class schedule: Monday and Wednesdays from 9:30am to 1:45pm

Email Address: [catalinalopezqui@ufl.edu](mailto:catalinalopezqui@ufl.edu)

Office Hours: TBA

Location: HPNP 1102

Zoom: <https://ufl.zoom.us/j/92850907314>

**Teaching Assistant: Upuli A Dissanayake (upulid@ufl.edu)**

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**Preferred course communications:**

**E-mail is the preferred mode of communication.** *Please use the e-mail function in Canvas*, selecting Dr. Lopez-Quintero and the assigned teaching assistant as the recipient(s). Please give me up to 36 hours during the work week to respond to your email, although I usually reply much sooner. I sometimes check email on the weekend, but I do not guarantee that I'll respond during that time. If you do not receive a response in these stated time frames, re-send the message (with the daily volume of e-mail, messages occasionally get missed). See Communication Guidelines for more information.

Please address me as Dr. Lopez-Quintero or Professor Lopez-Quintero and let me know how you prefer to be addressed. Email correspondence should follow the etiquette of business emails.

**Prerequisites**

Graduate status, PHC 6001, PHC 6052, and PHC 6000 or permission from the instructor

**PURPOSE AND OUTCOME**

**Course Overview**

This course covers essential analytic methods for research in epidemiology through lectures and directed practice with real data. A course project is used to help students strengthen their foundation in quantitative analysis and gain experience in peer-review productivity based on secondary data.

**To Program Outcomes**

This course, focusing on the essential analytic methods for research in epidemiology, is a crucial component of the program of study. It provides students with a robust foundation in quantitative analysis, a skill that is highly valued in both academic and professional settings. The use of real data for directed practice and a course project allows students to apply theoretical knowledge to practical scenarios, enhancing their understanding and proficiency. This hands-on approach aligns with accreditation standards that emphasize competency-based education. Furthermore, the experience gained in peer-review productivity prepares

students for the rigorous process of academic publishing, a key aspect of professional practice in the field..

### Course Objectives and/or Goals

1. Calculate and interpret basic epidemiology measures of frequency and association.
2. Draw appropriate inferences from epidemiologic data
3. Critically evaluate the validity of proposed and completed studies, addressing potential sources of bias.
4. Explain and apply methods for control of confounding
5. Formulate appropriate research questions and hypothesis and identify and apply the appropriate epidemiological methods to test proposed hypothesis.
6. Communicate epidemiologic information to lay and professional audiences both oral and written formats.

### Instructional Methods

The Epidemiology Methods II course is designed using Inquiry-Based Learning principles, fostering active student participation. Students undertake diverse projects, formulating their own research questions related to epidemiology, and conducting independent research. The findings are demonstrated through various mediums presentations or preparation or evaluation of scientific manuscripts, enhancing their understanding of epidemiological methods and equipping them with critical thinking and problem-solving skills.

### Expectations

Students are expected to arrive at class prepared, having completed all readings assigned outside of class. During lab sessions, students will practice critical skills utilized by health professionals, such as critical thinking, problem-solving, collaboration, and the application of concepts learned during lectures and readings to real-world examples. If students are unprepared for these lab sessions, they may struggle to achieve the course's higher learning objectives. Active participation in class and group projects is encouraged when students come prepared. While lab exercises are not graded, students will receive the answers to compare with their results. These answers will be discussed in the subsequent class. Students are encouraged to ask questions about any concepts they do not understand while completing the exercises. The instructional team will discuss the lab and group projects with each group. To ensure productive meetings, groups are expected to prepare their code and assignments in advance. *The level of preparation for the class will determine both the duration and content of the group discussion sessions.* Please let the teaching team know if you are experiencing any difficulties with the class material. Addressing concerns regarding the class content in a timely manner allows for prompt feedback and provides students with an opportunity to make necessary adjustments or seek additional support as needed.

## DESCRIPTION OF COURSE CONTENT

### Course Materials and Technology

#### Text Books:

#### Required

Hernán MA, Robins JM (2020). Causal Inference: What If (*WJ*). Boca Raton: Chapman & Hall/CRC. Available for free online: <https://www.hsph.harvard.edu/miguel-hernan/causal-inference-book/>

### Suggested

Szklo M & Nieto FJ. Epidemiology Beyond the Basics (*EBB*) (4th edition). Jones & Bartlett Learning (2018).

Lash TL, VanderWeele TJ, Haneuse S, Rothman KJ. Modern Epidemiology (*ME*), 4th edition Wolters Kluwer, 2021.

### Computer resources needed

Students must have a computer with access to SAS to participate in this course. Consult the course website in the Getting Started section for other computing needs and specifications.

For technical support for this class, please contact the UF Help Desk at:

- [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu)
- (352) 392-HELP - select option 2
- <https://lss.at.ufl.edu/help.shtml>

### Additional Academic Resources

[Career Connections Center](#): Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

[Library Support](#): Various ways to receive assistance with respect to using the libraries or finding resources.

[Teaching Center](#): Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

[Writing Studio](#): 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: [Visit the Student Honor Code and Student Conduct Code webpage for more information.](#)

On-Line Students Complaints: [View the Distance Learning Student Complaint Process.](#)

## ACADEMIC REQUIREMENTS AND GRADING

**Course Schedule:** The course is organized in 11 sessions. On the course site, the week's modules will be published each Monday and Wednesday. The announcement and conference features will also be utilized. *The content of this syllabus, particularly with regards to content activities, and the class material will be adjusted based on the academic progression of the students.*

### Assignments

#### Participatory Learning Forums (PLF) – 20% of the course grade (equal weighting for each forum)

Following Bloom's taxonomy (<https://teaching.uncc.edu/services-programs/teaching-guides/course-design/blooms-educational-objectives>) your group will formulate a question related to the content of each module and the article assigned and provide the correct answer and detailed explanation to the question formulated. **Questions in the higher domains will receive higher scores.** Every class the questions formulated by one or two groups will be selected randomly for the class discussion. All groups will upload a power point file with the question and correct answer in Canvas. *Grading for this assignment*

will be based on the complexity and originality of the question generated and the accuracy in the response provided (3 points for the question formulated, 2 points for the response provided).

### **Tell me your bias – 10% of the course grade (equal weighting for each forum)**

Every week one group will revise one of the bias described in the glossary, select a paper related to the type of bias selected, and describe how the bias were mitigated or should have been addressed in the paper selected. Each group will prepare a power point presentation summarizing this work and submit it 24 hours before the class presentation. Grading for this assignment will be based on the complexity and the accuracy of the information presented.

### **Research project – 45% of the course grade**

For this project your group will conduct secondary data analysis and write a brief research paper. We will use data from the National Health Interview Survey (NHIS), a survey conducted by the National Center for Health Statistics and the Centers for Disease Control and Prevention. Each group will select a justifiable and public health relevant exposure and/or outcome, the study population, define all variables, consider potential confounders, select an analytic method, describe and discuss the results, limitations and strengths of the selected methods and analytical approach and alternative analytical methods and future directions. Every lab session the students will show their progress and the completed project will be presented in the final class (30%). A final version of the project, with corrections suggested during the class presentation, should be uploaded in Canvas (20%).

### **Peer Review of Research project – 15% of the course grade**

Each group will prepare a review of the research project conducted by other group. It is expected that each group will discuss in depth each of the sections included in the manuscript and present alternative methodological or analytical strategies to improve the project.

### **Peer and Instructor Evaluation – 10% of the course grade**

You will actively be working in teams during the semester and your own level of preparation for the lab sessions is critical to your team's success. The peer evaluation component will allow your team members to give you feedback on your contributions.

## **POLICY RELATED TO DEADLINES**

If you have a scheduling conflict with the date of any of the classes or assignments, please discuss it with Dr. Lopez-Quintero as soon as you are aware of the conflict. For rare and acceptable situations, arrangements may be made for an alternative time at which to complete the assignment missed. Late submissions will only be permitted at the discretion of the instructor (advanced notice in writing required and per applicable University of Florida policies). Note that any requests for late submissions due to technical issues **MUST** be accompanied by the ticket number when the problem was reported to them. The ticket number will document the time and date of the problem. You **MUST** e-mail Dr. Lopez-Quintero and Ms. Hardemon (hardemont@ufl.edu) within 24 hours of the technical difficulty if you wish to request a make-up. **To earn any credits, reports and participatory learning forums must be submitted on time. Late submissions will not be accepted, unless emergent and other unforeseen circumstances occur based on UF policies. It is recommended that students not wait until the last day to submit assignments to account for unforeseen circumstances that may arise. Note that assignments close in Canvas at the stated date and time, and no assignment can be submitted via e-mail after the deadline for any reason.**

| Week    | Module                  | Topic   | In-class activities   | Readings   |
|---------|-------------------------|---|---|--|
| 13/May  | 1                       | Fundamentals of Epidemiology - Causal Inference & Data Analysis                   | Course orientation<br>Class presentations<br>Lab and class discussion<br>Project: formulating hypotheses & literature review  | Syllabus. ME – chapter 16, EBB – chapter 9, W1 chapter 1-3<br>W1- chapters, 1-3, 7; ME – chapter 16; EBB – chapters 5 and 9.<br>Statistical tests, P values, confidence intervals, and power: a guide to misinterpretations. Bias: <a href="https://doi.org/10.1136/jech.2003.008466">https://doi.org/10.1136/jech.2003.008466</a> |
| 15/May  | 2                       | Methods for Minimizing Confounding - Stratification and standardization methods   | Class presentation / article discussion<br>Lab: stratification methods<br>Tell me your Bias<br>Project: describing the study population   | ME – chapter 18; EBB – chapter 7<br>Who is in the study anyway? Guidelines for a useful Table 1.<br>Bias: <a href="https://doi.org/10.1136/jech.2003.008466">https://doi.org/10.1136/jech.2003.008466</a>  |
| 20/May  | 3                       | Methods for Minimizing Confounding - Regression methods                           | Class presentation and participatory learning forum<br>Lab: Analysis of survey data - Regression methods (Linear, Logistic, Poisson regression methods) / articles discussion<br>Tell me your Bias<br>Project: delineating the analytical approach      | ME – chapter 20 & 21; EBB – chapter 7; PLF assigned article<br>Bias: <a href="https://doi.org/10.1136/jech.2003.008466">https://doi.org/10.1136/jech.2003.008466</a>   |
| 22/May  | 4                       | Methods for Minimizing Confounding - Regression methods                           | Class presentation and participatory learning forum<br>Lab: Analysis of survey data - Regression methods (Ordinary, multinomial, and conditional regression) / articles discussion<br>Tell me your Bias<br>Project: delineating the analytical approach | ME – chapter 20 & 21; EBB – chapter 7; PLF assigned article<br>Bias: <a href="https://doi.org/10.1136/jech.2003.008466">https://doi.org/10.1136/jech.2003.008466</a>   |
| 27/May  | Memorial Day – No class |   |   |  |
| 29/June | 6                       | Methods for Minimizing Confounding – Analysis of longitudinal data                | Class presentation and participatory learning forum<br>Lab: Analysis of longitudinal data / articles discussion<br>Tell me your Bias<br>Project: testing the study hypotheses   | W1 – chapter 17; EBB – chapter 7 & 9; ME – chapter 22; PLF assigned article<br>Bias: <a href="https://doi.org/10.1136/jech.2003.008466">https://doi.org/10.1136/jech.2003.008466</a>   |
| 3/June  | 7                       | Methods for Minimizing Confounding – Instrumental variables and Propensity scores | Class presentation and participatory learning forum<br>Lab: Instrumental variable method and propensity scores / articles discussion<br>Tell me your Bias<br>Project: describing study results  | W1 – chapter 15 & 16; ME - chapter 26; EBB – chapter 7; PLF assigned article<br>Bias: <a href="https://doi.org/10.1136/jech.2003.008466">https://doi.org/10.1136/jech.2003.008466</a>  |
| 5/June  | 8                       | Methods for Minimizing Confounding – Inverse Probability Weighting                | Class presentation and participatory learning forum<br>Lab and class discussion: IP weighting / article discussion<br>Tell me your Bias<br>Project: describing study results  | W1 – chapter 12; PLF assigned article<br>Bias: <a href="https://doi.org/10.1136/jech.2003.008466">https://doi.org/10.1136/jech.2003.008466</a>   |
| 10/June | 9                       | Analysis of Interaction   | Class presentation and participatory learning forum<br>Lab: Interaction and effect measure modification/ articles discussion<br>Tell me your Bias<br>Project: discussion of the study results   | ME- chapter 26; EBB- chapter 6 PLF assigned article<br>Bias: <a href="https://doi.org/10.1136/jech.2003.008466">https://doi.org/10.1136/jech.2003.008466</a>   |
| 12/June | 10                      | Mediation Epidemiology projects - examples  | Class presentation and participatory learning forum<br>Tell me your Bias<br>Project: discussion of the study results  | ME – chapter 27; PLF assigned article<br>Bias: <a href="https://doi.org/10.1136/jech.2003.008466">https://doi.org/10.1136/jech.2003.008466</a>   |
| 17/June | 11                      | Research project  | Group presentations   |  |
| 19/June | 12                      | Juneteenth - No class   | Final project submission and peer review evaluations  |  |

## GRADING

The course requirements are presented in percentages above and add up to 100% of the course grade. Final grades follow the scale in this table:

| Percent of Course Points (out of 100%) | Letter Grade | Grade Point Equivalent |
|--|--------------|------------------------|
| 93% - 100%                             | A            | 4.00                   |
| 90% - 92.9%                            | A-           | 3.67                   |
| 87% - 89.9%                            | B+           | 3.33                   |
| 83% - 86.9%                            | B            | 3.00                   |
| 80% - 82.9%                            | B-           | 2.67                   |
| 77% - 79.9%                            | C+           | 2.33                   |
| 73% - 76.9%                            | C            | 2.00                   |
| 70% - 72.9%                            | C-           | 1.67                   |
| 67% - 69.9%                            | D+           | 1.33                   |
| 63% - 66.9%                            | D            | 1.00                   |
| 60% - 62.9%                            | D-           | 0.67                   |
| Below 60%                              | E            | 0.00                   |

Be aware that a C-is not an acceptable grade for graduate students. For greater detail on the meaning of letter grades and university policies related to them, see the Registrar's Grade Policy regulations at: <http://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

### Incomplete Grades

Per the University Catalog, "An incomplete grade may be assigned at the discretion of the instructor as an interim grade for a course in which you have completed a major portion of the course with a passing grade, been unable to complete course requirements before the end of the term because of extenuating circumstances, and obtained agreement from the instructor and arranged for resolution of the incomplete grade. Instructors are not required to assign incomplete grades. If make-up work requires classroom or laboratory attendance in a subsequent term, you must not register for the course again. Instead, you should audit the course and pay course fees.

If the make-up work does not require classroom or laboratory attendance, you and your instructor should decide on an appropriate plan and deadline for completing the course. When the course is completed, the instructor will initiate the change of grade. These procedures cannot be used to repeat a course for a different grade. An I grade should not be assigned to a student who never attended class; instead, instructors should assign a failing grade."

"A grade of I\* or N\* is not considered a failing grade for the term in which it is received, and it is not computed in the grade point average. However, if the I\* or N\* has not been changed by the end of the next term for which you are enrolled and receive grades, it will be counted as a failing grade and used in computation of your grade point average."

## ATTENDANCE

There are 11 required lab classes during the semester and attendance at all of those sessions is mandatory.

Per the UF Graduate Catalog, “Students are responsible for meeting all academic objectives as defined by the instructor. Absences count from the first-class meeting. In general, acceptable reasons for absences from class include illness, serious family emergencies, special curricular requirements, military obligation, severe weather conditions, religious holidays, and participation in official University activities. Absences from class for court-imposed legal obligations (e.g., jury duty or subpoena) must be excused. Other reasons also may be approved.”

If you are aware that you will need to miss a class session for an approved reason then you must inform the instructor in advance to receive an exception. If you miss a lab session for illness or for serious family emergency then you will be expected to provide a doctor’s note after the missed session. Missing a class session without an acceptable reason will result in loss of 3% of your final course grade. Missing three or more lab sessions may result in a failing grade for the course. Arriving more than 20 minutes late is considered to be a missed lab.

Policy Related to Required Class Attendance Please note all faculty are bound by the UF policy for excused absences. For information regarding the UF Attendance Policy see the Registrar website for additional details:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

## STUDENT ROLES AND OPPORTUNITIES FOR INPUT

### Expectations Regarding Course Behavior

Professional and respectful demeanor is expected of all students. Students are expected to start the session on time and to stay for the duration of the class period.

### PHHP Inclusive Learning Environment

Public health and health professions are based on the belief in human dignity and on respect for the individual. As we share our personal beliefs inside or outside of the classroom, it is always with the understanding that we value and respect diversity of background, experience, and opinion, where every individual feels valued. We believe in, and promote, openness and tolerance of differences in ethnicity and culture, and we respect differing personal, spiritual, religious and political values. We further believe that celebrating such diversity enriches the quality of the educational experiences we provide our students and enhances our own personal and professional relationships. We embrace The University of Florida’s Non-Discrimination Policy, which reads, “The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans’ Readjustment Assistance Act.” If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office of Multicultural & Diversity Affairs website: [www.multicultural.ufl.edu](http://www.multicultural.ufl.edu).

### Academic Integrity

Students are expected to act in accordance with the University of Florida policy on academic integrity.

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge:

**“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”**

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied:

**“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”**

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information regarding Academic Integrity, please see Student Conduct and Honor Code or the Graduate Student Website for additional details:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>  
<http://gradschool.ufl.edu/students/introduction.html>

**Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.**

**Turnitin:** Academic integrity is a serious issue that has been a growing problem at Universities. I have a zero tolerance policy for breaches of academic integrity, including plagiarism and cheating. There are multiple video resources posted on our Canvas site that discuss plagiarism and how to properly quote and cite other people’s work. With each assignment and exam you complete you are pledging that you hold yourself and your classmates to the highest standards of academic integrity.

I use an online tool called Turnitin to check student work for originality; in other words, your work should be in your own words and not copied from any source. Every student needs to watch the videos on plagiarism and on using Turnitin and needs to check their own Turnitin report, made available through the Canvas site automatically when you submit anything through assignments. You should submit assignments early enough to have time before the due date to make revisions to them if your Turnitin report shows areas of high similarity to online resources. **Any student caught cheating or plagiarizing will be reported to the Dean of Students Office and will be subject to academic penalties in the course, at minimum.**

### **Mid-course Evaluation**

Students in this course will be provided with the opportunity to provide feedback on the course mechanics and their learning experience. A survey will be made available on the course website in Canvas to solicit such feedback. This evaluation will occur as a way to identify ways in which the course may be improved for this cohort during the semester.

### **Online Faculty Course Evaluation Process**

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.



### **Recording Within the Course:**

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

### **Policy Related to Guests Attending Class:**

Only registered students are permitted to attend class. However, we recognize that students who are caretakers may face occasional unexpected challenges creating attendance barriers. Therefore, by exception, a department chair or his or her designee (e.g., instructors) may grant a student permission to bring a guest(s) for a total of two class sessions per semester. This is two sessions total across all courses. No further extensions will be granted. Please note that guests are **not** permitted to attend either cadaver or wet labs. Students are responsible for course material regardless of attendance. For additional information, please review the Classroom Guests of Students policy in its entirety. Link to full policy: <http://facstaff.phhp.ufl.edu/services/resourceguide/getstarted.htm>

## **SUPPORT SERVICES**

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

If you require classroom accommodation because of a disability, you must register with the Dean of Students Office <http://www.dso.ufl.edu> within the first week of class. The Dean of Students Office will provide documentation of accommodations to you, which you then give to me as the instructor of the course to receive accommodations. Please make sure you provide this letter to me by the end of the second week of the course. The College is committed to providing reasonable accommodations to assist students in their coursework.

### **Counseling and Student Health**

Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

- The Counseling and Wellness Center 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line and in person assistance is available.
- You Matter We Care website: <http://www.umatter.ufl.edu/>. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.
- The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: <https://shcc.ufl.edu/>
- Crisis intervention is always available 24/7 from:  
Alachua County Crisis Center  
(352) 264-6789  
<http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>

Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.