

Laboratory in Biological Sciences Lab Syllabus – Summer 2021

BSC2005L ONLINE

I. INSTRUCTOR INFORMATION

Coordinator of Labs

Kent A. Vliet, Ph.D.

Email: kvliet@ufl.edu

Office Hours: Wednesdays from 9:30 to 11:30
am and by appointment online -
<https://ufl.zoom.us/j/4336756706>

Teaching Assistants:

TAs' contact info is posted below.

TAs' office hours will be posted in Canvas soon.

Office hours will be held via Zoom

Teaching Assistants	Section Numbers	Class Numbers	Email
Becker, Anna	7450, 7H49	16,216, 10,548	becker.a@ufl.edu
Brahma, Pratush	74H6	10,545	pratush.brahma@ufl.edu
Montalvo, Danny	74H7	10,546	ldmontalvo@ufl.edu
Newell, Nick	7H45	10,547	nicholas.newell@ufl.edu
Tan, Bowen	7H48	16,101	tanbowen@ufl.edu

II. COURSE INFORMATION

The entire course will be conducted online through the course CANVAS website. You can directly access the Canvas login at <https://elearning.ufl.edu/>.

PRE(CO)REQUISITE

Officially, BSC 2005 is a pre- or co-requisite for BSC 2005L. However, any biology course, including high school biology, and access to a biology text will probably be adequate.

COURSE DESCRIPTION

The amazing intricacies and complexities of life tend to obscure basic underlying relationships among all living species. This course attempts to elucidate the principles of biological organization and function that tie together seemingly unrelated forms. The tendency of species to change over time (i.e. evolution) will provide the bases of our approach to interpreting biological phenomena. Biological principles will be examined at all levels, from cellular to organs and organisms, and from populations to communities and ecosystems. Attention will be paid to the relationships between structure (anatomy) and function (physiology) at all levels of organization.

This is a hands-on laboratory, even though it is online. This means that students will be using the best available tools both online and offline, to understand biological principles through an interactive approach. The course material is divided into 4 units and each unit is subdivided into modules where each module corresponds to a course objective that is designed to be taught over a one-week period. Each module consists of 3 assignments: 1) readings, 2) virtual, hands-on or blended activities, and 3) collaborative activities. This will be further explained in this syllabus.

MINIMUM TECHNICAL SKILLS

To complete your tasks in this course, you will need a basic understanding of how to operate a computer, and how to use word processing software.

COURSE GOALS AND OBJECTIVES

General: With this laboratory, students will obtain a hands-on introduction to living systems, including an understanding of the scientific method, cell structure and function, genetic mechanisms, evolutionary processes, human anatomy and physiology, ecology and the nature of science.

Specific per modules/weeks:

UNIT (1): INTRODUCTION

Module 1.1. The students will understand the objectives of the course, activities, assessments and the technologies.

Module 1.2. The student will be able to describe the scientific method.

UNIT (2): CELLS, GENETICS AND EVOLUTION

Module 2.1. The student will be able to describe the main organelles of cells, their functions and the phases of cell division.

Module 2.2. The student will be able to describe the characteristics and function of DNA and complete the process of extraction.

Module 2.3. The student will be able to describe the general principles of genetics.

Module 2.4. The student will be able to describe the general principles of evolution.

UNIT (3): ECOLOGY

Module 3.1. The student will be able to describe the principles of population ecology.

Module 3.2. The student will be able to describe the main ecological interactions.

Module 3.3. The student will be able to debate the human impact on global ecology.

UNIT (4): ANATOMY

Module 4.1. The student will be able to perform a pig dissection.

Module 4.2. The student will be able to identify the main organs of the circulatory, respiratory and digestive systems.

UNIT (4): ANATOMY (OPTION 2)

Note: This option is only available if the student can't perform a pig dissection due to religious reasons.

Module 4.1. The student will be able to describe the principles of sensory physiology.

Module 4.2. The student will be able to identify the main organs of the circulatory, respiratory and digestive systems.

Teaching Philosophy

The design and teaching of this course is grounded in the theoretical framework of community of inquiry. Accordingly, it supports connection and collaboration, creating an environment that enhances reflection, discourse, critical thinking and meaningful learning. In this course, we *blend* the best online resources with the best traditional hands-on technique. We also incorporate social, cognitive, and pedagogical principles; and take into consideration student-centered learning theories.

COURSE COMMUNICATION

All e-mail correspondence to course instructors must originate from your ufl.edu account, have your full name in the body of the e-mail, and contain your course number in the subject line. E-mails not meeting these requirements may not be recognized by our e-mail filters, and thus may not be answered. For the timeliest responses, use the Inbox Tool in Canvas.

REQUIRED MATERIALS

eBook: Biology for a Changing World, with Physiology. Author: Shuster, Michelle (Third Edition)
<https://www.macmillanhighered.com/launchpad/sabiologyphys3e/16733098>. (Links to an external site.)

Carolina Biological Kits

Part of your assignments will be completed using materials from Carolina Biological kits. You may purchase the Kits directly through [Carolina Biological](http://www.carolina.com) through this link: <http://www.carolina.com/distancelearning/201501-uf-bsc2005l> (Links to an external site.) The cost of the kit is \$66.23 plus shipping from Carolina, and \$81.23 for a voucher from the bookstore.. If you need to go through the Bookstore for financial aid reasons, codes will be available for purchase on Monday, May 3rd at <https://www.bkstr.com/floridastore/shop/textbooks-and-course-materials> (Links to an external site.). Students who are not local to Gainesville and cannot pick up in-store should make a note in the customer comments when you check out to "Please have the voucher code emailed upon processing" (For emailed codes, please allow 1-2 business days for processing) Please include your preferred email address in the comments.

- This will include the Strawberry DNA extraction Kit and the Fetal pig dissection Kit.
- You will need to purchase your own strawberries for the Strawberry DNA Lab.
- You are able to purchase kits without the fetal pig if it is against your beliefs, with the permission of the course instructor. You will still be responsible for completing an alternative assignment.
- You are required to have the kits by the **third week** of the semester. No extensions will be granted if you cannot get the kits in time to start the lab.
- Digital camera, smart phone or your computer to take photos and record video.
- Headsets and microphone for the online debate.

GENERAL EDUCATION STUDENT LEARNING OUTCOMES

Biological science courses provide instruction in the basic concepts, theories, and terms of the scientific method in the context of the life sciences. Courses focus on major scientific developments and their impacts on society, science and the environment, and the relevant processes that govern biological systems. Students will formulate empirically testable hypotheses derived from the study of living things, apply logical reasoning skills through scientific criticism and argument, and apply techniques of discovery and critical thinking to evaluate outcomes of experiments.

The General Education objectives and the associated Student Learning Outcomes for Biological Sciences are achieved through inquiry-based and active-learning exercises in the laboratory, including prelab assignments, experimental design, quizzes, oral presentations, and completion of weekly lab notes and datasheets. These exercises are designed to reinforce, augment, and accompany learning objectives in the companion BSC 2005 lecture course. In particular, the BSC 2005L lab exposes students to the development and testing of specific hypotheses, collection, and presentation of biological data, and analysis of statistical significance.

COURSE EXPECTATIONS

Each student is solely responsible for reading and following the instructions, guidelines, and schedules in this syllabus. Not having read the information in this syllabus or in instructor announcements will not constitute an excuse for missing an assignment or other assessment.

This course is time and place-independent and incorporates a degree of individual choice in assignments and projects, to capitalize on the diversity of experience and prior knowledge of the students; but is not entirely self-paced. Online discussions will be most productive if everyone completes their assignments.

Professional conduct is expected. Know and follow university policy regarding academic honesty. The Student Honor Code is located at <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>

(Links to an external site.)

In your online work, follow standards of netiquette: be accountable for what you send, acknowledge online sources you reference. Professional Conduct is necessary to earn an excellent or good grade. For more details of what is expected in the discussion forums, see the instructions for each module.

Reading assignments and activities are due every **Wednesday**. **Please add your activity deliverable in the discussion board by Wednesday too.** The collaborative activities in the discussion board are due every **Friday**. These deadlines will be maintained during the course, unless otherwise noted. There are no excuses for late work. I will need to know of technical difficulties 6 hours prior to a due date in order to give an extension.

Please contact your instructor if you are unable to complete an assignment, if you have an inquiry regarding your grade or for emergency situations.

III. COURSE POLICIES

As part of BSC 2011L, you are required to complete online assignments. If at any time you have questions about these assignments, please contact the Online Instructor. A schedule will be posted on e-Learning with the due dates for each assignment. All assignments must be completed by the stated due date and time for credit. No credit will be given for assignments completed after the deadline. Extensions will NOT be given because of technical or personal issues that occur within 24 hours of the assignment deadline. Many assignments may take several days to complete, so make sure you have time to devote to that assignment before you begin. You are expected to work by yourself on the assignments and cheating will not be tolerated. Note that all due dates for assignments are clearly posted on the course website and reflect the most up-to-date information.

ATTENDANCE

Students are expected to check the Canvas course regularly for announcements, assignment due dates, and other course-related information. Students are to complete all assigned work (quizzes, activities, and discussions) by the due dates. Students are strongly encouraged to read the assigned chapters before attempting any of the assignments as this will make it easier to comprehend the material.

TIME COMMITMENT

The UF College of Liberal Arts and Sciences assumes that each student will devote 3-4 hours per week per credit-hour to each course, including time in lectures and labs. Because BSC 2005L is 1 credit, each student should therefore expect to devote 3-4 hours per week to this course during a regular semester. A recommended time allocation is in the table. If you find yourself spending more than the recommended number of hours per week on average on these activities, discuss this with your course instructor to see if you can refine your study habits. If you find yourself spending less than the recommended number of hours per week on average, you should recognize that you may have difficulty learning and comprehending the material in this time, and this will probably be reflected in poor performance on the various assessments, causing you to receive a lower overall course grade.

Activity	Hours/Week
Readings	1
Lab Activities	2-3

COMMUNICATION WITH YOUR ONLINE INSTRUCTOR

When you have a question about the assignments, check the following sources first to see if it is already answered, before e-mailing your Online Instructor:

- Course Syllabus
- e-Learning Announcements (this is the primary means that your Online Instructor has to communicate with you in a timely manner)

If you still cannot find the answer to your questions:

- E-mail your TA. Barring unusual circumstances, expect a reply with 24 hours (48 hours on weekends; do not expect an immediate response in the evenings). E-mails and e-Learning Discussion posts are checked at least once per day, but sometimes not more than that.

COURSE ACTIVITIES AND MATERIALS

Class materials will be posted on the course e-Learning website (<https://elearning.ufl.edu/>). The course is found under “e-Learning in Canvas”. You are responsible for all Announcements posted on the course website for this class. Each lab will begin on a Sunday and close on the following Sunday at 11:59 pm EDT/EST. Some labs have a two-week component, in which case each part will adhere to this schedule.

Lab Readings

The textbook is *Biology for a Changing World, 3e* by Shuster, Vigna, Tontono, and Sinha. Sinauer Associates and W.H. Freeman (publisher), 2018. Additional lab background readings are available in your Canvas course.

Pre-Lab Quizzes

Pre-lab quizzes (Reading Assessments) will be due on Wednesday at 11:59 pm EDT/EST. All readings should be done prior to completing the pre-lab quiz.

Lab Activities and Discussions

All individual lab activities must be completed/turned in by Sunday at 11:59 pm EDT/EST. Discussion-related activities may have multiple due dates, please read the discussion description for more information. Due dates are set for the initial posts. If it is a two-week-long lab, then only the part assigned for that week will be due.

E-mails and e-Learning discussion posts are checked at least once per day, but sometimes not more than that.

COURSE GRADING

Assignment totals are subject to change at the discretion of the instructor. All grades will be posted on e-Learning, and it is the responsibility of the student to check their grades to make sure they are accurate. If there is a discrepancy, you must let us know within ONE week of the grade being posted on e-Learning.

The minimum grade cutoffs are listed below. These cutoffs will not be raised; in other words, if you receive 93% of the possible points, you are guaranteed to earn an A grade. Final scores will NOT be rounded (i.e., 89.99% is not 90%).

Letter Grade	Point Range (%)
A	≥ 93.0%
A–	≥ 90.0%
B+	≥ 87.0%
B	≥ 83.0%
B–	≥ 80.0%
C+	≥ 77.0%
C	≥ 73.0%

Letter Grade	Point Range (%)
C-	≥ 70.0%
D+	≥ 67.0%
D	≥ 63.0%
D-	≥ 60.0%
E	< 60%

Note that the current UF policy for assigning grade points is available at the following undergraduate catalog web page: [Grades and Grading Policies](#).

PARTICIPATION

Some labs require you to discuss answers in groups. You must adhere to the netiquette policies outlined below. There are rubrics for discussions, but keep in mind that posts should make educated initial posts about the topic and properly cite sources and provide constructive criticism and feedback for groupmates' posts.

Netiquette

When posting on the Discussion Board in your online class, you should:

- Make posts that are on-topic and within the scope of the course material.
- Take your posts seriously and review and edit your posts before sending them.
- Be as brief as possible while still making a thorough comment.
- Always give proper credit when referencing or quoting another source.
- Be sure to read all messages in a thread before replying.
- Don't repeat someone else's post without adding something of your own to it.
- Avoid short, generic replies such as, "I agree." You should include why you agree or add to the previous point.
- Always be respectful of others' opinions even when they differ from your own.
- When you disagree with someone, you should express your differing opinion in a respectful, non-critical way.
- Do not make personal or insulting remarks.
- Be open-minded.

COURSE TECHNOLOGY REQUIREMENTS

It is the responsibility of the student to maintain a functioning computing system and internet connection that can meet the minimum technical requirements of the course.

Computing/internet connectivity issues will NOT be acceptable excuses for missed deadlines unless they are brought to the attention of the instructor at least 48 hours prior to the deadline and accompanied by the ticket number from technical support.

LATE WORK

Late work will not be accepted, unless there is written documentation from the Dean of Students Office (<https://care.dso.ufl.edu/instructor-notifications/>), or due to a documented technical issue. If there is an issue with you completing your assignments on time, contact your instructor immediately. Do not wait until the last minute!

MAKE-UPS

There are no make-ups available for assignments. Once assigned, assignments are always available online up until the deadlines. Because they are assigned well ahead of time, documentation of illness or a serious personal matter must be provided for at least five of the seven days of the week of the assignment's deadline for any accommodations to be made. It is especially important not to wait until just before the deadlines to complete assignments. A computer problem happening just before the deadline is not a valid excuse for not completing the assignment. If there is a technical problem with accessing the website or a particular assignment within CANVAS, you must contact eLearning technical support and the online instructor at least 48 hours prior to the deadline, so appropriate steps can be taken to fix the issue and appropriate extensions can be given if necessary. (Thus, check early that you can access the assignments. You will not be granted an extension for technical problems, if you do not contact the online instructor before the deadline.) It is best to get your assignments done at least two days early. It is your responsibility to have and maintain all the equipment and services necessary to participate in an online course.

Repeated for emphasis: Technical problems must be reported to the online instructor at least 48 hours prior to the submission deadline, no exceptions!

DROP/ADD/WITHDRAWAL

A student can drop/add during the drop/add period with no penalty. After drop/add, a student who drops will receive a W until the date listed in the academic calendar. After that date, the student may be assigned an "E" (fail). Note: it is the responsibility of the STUDENT to withdraw from a course, not the instructor. Failure to participate/complete the class does NOT constitute a drop.

COURSE EVALUATIONS

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

IV. UF POLICIES

UF Online students are bound by the same UF policies as on-campus students. Please read through this section in full.

UNIVERSITY POLICY ON ACADEMIC CONDUCT

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity by abiding by the Honor Code. On all work submitted for credit by students 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." The [Student Honor Code](#) specifies the number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://disability.ufl.edu/>) by providing appropriate documentation. Once registered, students will receive an accommodation letter that must be presented to the instructor when requesting an accommodation. Note that the student should provide documentation of a requirement for accommodation **by the second week of classes**. No accommodations are available to students who lack this documentation. It is the policy of the University of Florida that the student, not the instructor, is responsible for arranging accommodations when needed. Once notification is complete, the Dean of Students Office of Disability Resources will work with the instructor to accommodate the student. Accommodations are not retroactive.

CLASS DEMEANOR OR NETIQUETTE

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions, and chats. Review the [Netiquette Guide for Online Courses](#) for expected student behavior.

MINIMUM TECHNOLOGY REQUIREMENTS

The University of Florida expects students entering an online program to acquire computer hardware and software appropriate to his or her degree program. Most computers are capable of meeting the following general requirements. A student's computer configuration should include:

- Webcam
- Microphone
- Broadband connection to the Internet and related equipment (Cable/DSL modem)
- Microsoft Office Suite installed (provided by the university)

Individual colleges may have additional requirements or recommendations, which students should review prior to the start of their program.

SOFTWARE USE

All faculty, staff, and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

VIRTUAL CLASS SESSIONS

Our virtual class sessions, if any, may be audio-visually recorded for students in the class to refer back. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials are prohibited.

V. TECHNOLOGIES

This course uses the following technologies.

ZOOM

Zoom is an easy to use video conferencing service available to all UF students, faculty, and staff that allows for meetings of up to 100 participants.

You can find resources and help using Zoom at <https://ufl.zoom.us>.

VI. GETTING HELP

Resources are available at [Distance Learning's Getting Help](#) for:

- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

Should you have any complaints about your experience in this course, please visit [Distance Learning's Student Complaint Process](#) to submit a complaint.

College can be a very stressful time in a person's life. Resources are available on campus to help students meet academic goals and solve personal problems, which may interfere with their academic performance. If you find that you are having difficulty emotionally or academically, there is substantial support available. See "*A Self Help Guide for Students*" or contact one of the following services:

- UF Counseling and Wellness Center, Radio Rd Facility, 392-1575
- Dean of Students Office, 202 Peabody Hall, 392-1261
- Career Resource Center, Reitz Union, 392-1601
- CLAS Academic Advising Center, Farrior Hall, 100 Fletcher Drive, 392-1521
- UF Field and Fork Pantry, 564 Newell Dr., 294-3601

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live and believes this may affect their performance in the course, is urged to contact the Dean of Students (202 Peabody Hall, 392-1261) for support. Furthermore, please notify your instructor(s) if you are comfortable in doing so. This will enable us to provide any resources that we may possess.

TECHNICAL DIFFICULTIES

For issues with technical difficulties for Canvas, please contact the UF Help Desk at <http://helpdesk.ufl.edu> or (352) 392-HELP (4357).

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from the Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

HEALTH AND WELLNESS

- **U Matter, We Care:** If you or someone you know is in distress, please contact <mailto:umatter@ufl.edu>, 352-392-1575, or visit umatter.ufl.edu to refer or report a concern and a team member will reach out to the student in distress.
- **Counseling and Wellness Center:** Visit counseling.ufl.edu or call 352-392-1575 for information on crisis services as well as non-crisis services.
- **Student Health Care Center:** Call 352-392-1161 for 24/7 information to help you find the care you need, or visit shcc.ufl.edu.
- **University Police Department:** Visit police.ufl.edu or call 352-392-1111 (or 9-1-1 for emergencies).
- **UF Health Shands Emergency Room/Trauma Center:** For immediate medical care in Gainesville, call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; ufhealth.org/emergency-room-trauma-center.

ACADEMIC AND STUDENT SUPPORT

- **Career Connections Center:** 352-392-1601. Career assistance and counseling services career.ufl.edu/.
- **Library Support:** Various ways to receive assistance with respect to using the libraries or finding resources: cms.uflib.ufl.edu/ask
- **Teaching Center:** 352-392-2010 General study skills and tutoring: teachingcenter.ufl.edu/
- **Writing Studio:** 352-846-1138. Help brainstorming, formatting, and writing papers: writing.ufl.edu/writing-studio/

VII. PRIVACY AND ACCESSIBILITY POLICIES

For information about the privacy policies of the tools used in this course, see the links below:

Technology	Privacy Policy	Accessibility Policy/Statement
Instructure (Canvas)	Privacy Policy	Accessibility
Sonic Foundry (Mediasite Streaming Video Player)	Privacy Policy	Accessibility
Zoom	Privacy Policy	Accessibility
YouTube (Google)	Privacy Policy	Accessibility
Microsoft	Privacy Policy	Accessibility
Adobe	Privacy Policy	Accessibility
Honorlock	Privacy Policy	Accessibility
OpenStax	Privacy Policy	Accessibility
Labster	Privacy Policy	Accessibility

VIII. COURSE SCHEDULE

Lab	Start	End	Subject
0	5/10	5/16	Module 1.1 Start Here. Orientation (Must complete to access Lab 1)
1	5/16	5/23	Module 1.2 The Scientific Method
2	5/23	5/30	Module 2.1 Cells
3	5/30	6/6	Module 2.2 DNA (<i>requires Carolina Biological kit</i>)
4	6/6	6/13	Module 2.3 Genetics
5	6/13	6/20	Module 2.4 Evolution
6	6/20	6/27	SUMMER BREAK
7	6/27	7/4	Module 3.1 Population ecology
8	7/4	4/11	Module 3.2 Ecological Interactions
9	7/11	7/18	Module 3.3 Human Impact on Global Ecology

Lab	Start	End	Subject
10	7/18	7/25	Module 4.1 Overview of Physiology (<i>Carolina Biological</i>)
11	7/25	8/1	Module 4.2 Circulatory, Respiratory, and Digestive (<i>Carolina Biological</i>)
12	8/1	8/6	NO LABS

Assessment

In this course there is a total of 11 modules. Because the **first module/week** is an introduction, it won't be assessed the same way as the others. Instead, it will be worth **10 points** of your final grade. The remaining modules/weeks will have the **same weight** and each will be worth **90 points** as explained in the table below. Detailed information will be provided in the instructions of each module, where also, rubrics are provided. To obtain the maximum grade, go over the rubrics before submitting your assignment.

Assessment per module/week	Points
Reading assessment	20
Activity deliverables (worksheets, videos, artifacts). Individual points will be explained in the activity instructions. Rubric provided for each module	40
Collaboration (participation in discussion boards/debates). Rubric provided for each module	30
Total	90

VIV. DISCLAIMER

This syllabus represents the instructor's current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.