

To: Brian McGee
Provost

From: Doug Ferguson, Susan Kattwinkel, Tim Carmichael
Investigative Panel in the matter of Robert Dillon, Jr.

Re: Final Report

Date: March 14, 2016

The investigative review panel (hereafter "panel") has concluded a fact-finding mission with regard to policy compliance by Dr. Robert Dillon, Jr., of the Department of Biology. The panel was appointed to investigate the charge that Dr. Dillon is in violation of college policy.

The specific policy in question is Section VIII.A.2 of the Faculty/Administrative Manual (FAM) which states:

At the beginning of each term, instructional staff members are responsible for stating clearly and in writing the instructional objectives of each course they teach. It is expected that each instructional staff member will direct instruction toward the fulfillment of these objectives and that examinations will be consistent with these objectives. Instructional staff members are responsible for ensuring that the content of each course they are assigned to teach is consistent with the course descriptions approved by the Faculty Committee on Curriculum and Academic Planning or the Graduate Council and published in the current College of Charleston Undergraduate Catalog or the Graduate School of the College of Charleston Catalog

The course for which Dr. Dillon is alleged to have supplied inadequate learning outcomes is BIOL 305L. For purposes of comparison and contextualization, the panel asked the Biology Department chair for all BIOL 305L syllabi from the past five years (see attached syllabi). The provided materials, which also included Dr. Dillon's versions for Spring 2011, Fall 2011 and Spring 2015, indicate that other professors teaching this course have listed learning outcomes (labeled "course objectives") for at least the last five years. For example, Dr. Agnes Ayme-Southgate (Fall 2011) and Dr. Bharathi Viswanathan (Spring 2012, Spring 2013, Fall 2014) consistently list slight variations of the following three objectives:

1. excite your imagination and love of Biology
2. give examples of the Mendelian genetics and gain insight into molecular genetics and bioinformatics
3. understand the scientific process of gathering information and develop information, gathering, critical and analytic skills.

In the two versions of his BIOL 305L syllabus from 2011, Spring and Fall, Dr. Dillon did not list course objectives/outcomes. In his Spring 2015 version, he supplied a long Woodrow Wilson quotation from 1896 regarding the "right thought" of the world. He has subsequently claimed (see March 3 email reply) that science departments commonly interpret "right thought" as "the scientific method."

Having reviewed available evidence, this investigative panel finds no general reference to biology nor any specific mention of genetics is evident in Wilson's words, although at least one member of the panel noted that the quotation might be seen as serving as a general

epistemological philosophy for the course. The panel agrees that the sole semblance of Dr. Dillon's statement to the learning outcomes of the other BIOL 305L instructors is that Dr. Dillon's Spring 2016 (revised) version reformatted the Wilson quotation into a bulleted list matching the format that other faculty had utilized when they stated specific course objectives.

The panel sent an emailed memo to Dr. Dillon asking him to clarify how the learning objectives on his revised Spring 2016 syllabus would be consistent with the assignments in the course (listed on the final page of the same syllabus). The panel stated in the memo [which in its entirety is attached], "If you can clarify that assignments in BIOL 305L lab course are clearly connected to the outcomes you have proposed, it may help us make an unbiased determination whether or not you are in compliance with the standard required by College policy and as evaluated by SACSCOC."

From the questions posed in the memo, the panel thought the following were particularly salient to the investigation: "Exactly how do you (or would you) measure whether the outcomes have been met? How are the students able to discern the mapping of assignments to your stated outcomes?"

In his reply to the panel, Dr. Dillon stated the following course-specific objectives/outcomes:

1. Science is the construction of testable hypotheses about the natural world....in Genetics 305L, we construct testable hypotheses about the mechanisms of heredity.
2. Over the course of 14 weeks, students in Genetics 305L are expected to submit 10 lab reports and take two practical quizzes evaluating their ability to construct testable hypotheses about heredity.

Two members of the panel believe that Dr. Dillon's latest statements would have come very close to being learning outcomes and perhaps have been accepted as learning outcomes, had he chosen to explicitly state them as outcomes on his syllabus either initially, or at any other point when given multiple opportunities to do so, at which time his department could have issued approval.

Nothing from the evidence, including Dr. Dillon's March 3 email reply, indicates that Wilson's quotation provides BIOL 305L students with real course objectives embodied in a clear list of learning outcomes.

The panel found that the learning outcomes on Dr. Dillon's syllabus are not specific to the course (BIOL 305L), nor do the stated learning outcomes make a clear connection to the course content or any of the required readings or activities or assignments.

Attachments: March 1 email request
March 3 email reply
BIOL 305L past syllabi

Genetics Lab 305.L01 Tuesday

Course Policy, Spring 2011

R. T. Dillon RHSC Rm 200A

953-8087, DillonR@cofc.edu

1. The Genetics Laboratory (RHSC 200) is open essentially every day during regular business hours. I will certainly be present **Tuesday, Wednesday, and Thursday 11 - 12:00**, and many other times as well, but it's always best to make an appointment.

2. Lab manual is available from the College bookstore. It would help to read the introduction and each of its nine investigations before coming to class.

See the Genetics Lab website
<http://dillonr.people.cofc.edu/genelab.htm>

3. Attendance. You are expected to do your share of the work. Many of the investigations (especially the fruit fly ones) can get tedious, and it's unfair to expect your lab partner to do it all if you miss a class. So if you're sick, please call 953-8087 so arrangements can be made.

4. Lab reports are variably-formatted. There will be questions to answer and analyses to perform for each investigation. You must work closely with your lab partner to gather data for most lab reports, but **please think independently**. Everyone should submit his own report with his own data analysis. Reports are due one week after the completion of the investigation, unless noted below. Reports not submitted promptly **at the start of class** are late, and will be marked off 50%. You have a week-long "grace period" in which to submit your report for half credit, but I do not accept reports thereafter.

5. Practical exams do not consume the entire class period and are not comprehensive. Nevertheless, the same policy pertains in lab and lecture. Contact me ASAP if you must miss an exam. Regardless of your excuse, the later the make-up, the harder the test.

<u>Lab reports</u>	<u>Course Grading</u> <u>Date due</u>	<u>Points</u>
1. Probability & statistics	Jan 25	8
2. <i>Drosophila</i> familiarization	Jan 25	5
3. Dihybrid crosses in corn	Feb 8	8
4. Variable expressivity	Feb 15	6
5. Incomplete penetrance	Mar 1	8
6. Linkage analysis	Mar 22	12
7. Human karyotype analysis	Mar 29	12
8. Chromatography of eye pigments	Apr 6	10
9. Protein electrophoresis	Apr 19	12
10. Selection and genetic drift	Apr 26	<u>24</u>
TOTAL for lab reports		105
TWO lab quizzes @ 40 pts ea		80
Lab performance		<u>15</u>
COURSE TOTAL		200

Spring 2011 Syllabus
Genetics Labs 305.L01 & 305.L03
 R. T. Dillon

Readings are from my *Genetics Laboratory Manual*, available at the bookstore.

Date	Topic & Exercise	Readings
Jan 11, 12	Introduction	-
Jan 18, 19	Probability & Statistics	Inv. 1
Jan 25, 26	<i>Drosophila</i> familiarization Set up two experiments with the "Lobed" gene: - A comparison of variation in expressivity due to genetics and environment ("expressivity") - Incomplete penetrance in a monohybrid cross ("penetrance")	Inv. 3 Inv. 4
Feb 1, 2	Independent assortment and gene interaction in maize Set up selection & drift experiments ("S&D") Clear penetrance & expressivity experiments	Inv. 2 Inv. 5
Feb 8, 9	Set up trihybrid cross for gene mapping experiment ("THC") Analysis of variable expressivity Clear S&D experiments	Inv. 6 Inv. 4
Feb 15, 16	Count & transfer F1 from S&D experiments Clear penetrance experiment Clear parentals from THC	Inv. 5
Feb 22, 23	Analysis of incomplete penetrance in a monohybrid cross Make THC test cross Clear S&D experiments	Inv. 4
Mar 1, 2	Lab Quiz Count & transfer F2 from S&D experiments Clear F1 from THC	Inv. 5
Mar 8, 9	(Spring Break) Instructor will clear S&D experiments	-
Mar 15, 16	Linkage analysis	Inv. 6
Mar 22, 23	Human cytogenetics Count & transfer F3 from S&D experiments	Inv. 7 Inv. 5
Mar 29, 30	Chromatography of eye pigments Clear S&D experiments	Inv. 8
Apr 5, 6	Protein electrophoresis	Inv. 9
Apr 12, 13	Count F4 and terminate S&D experiments Selection and genetic drift	Inv. 5
Apr 19, 20	Lab Quiz	-

Genetics Lab 305.L03 Wednesday

Course Policy, Spring 2011

R. T. Dillon RHSC Rm 200A

953-8087, DillonR@cofc.edu

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2. Lab manual is available from the College bookstore. It would help to read the introduction and each of its nine investigations before coming to class.

See the Genetics Lab website
<http://dillonr.people.cofc.edu/genelab.htm>

3. Attendance. You are expected to do your share of the work. Many of the investigations (especially the fruit fly ones) can get tedious, and it's unfair to expect your lab partner to do it all if you miss a class. So if you're sick, please call **953-8087** so arrangements can be made.

4. Lab reports are variably-formatted. There will be questions to answer and analyses to perform for each investigation. You must work closely with your lab partner to gather data for most lab reports, but **please think independently**. Everyone should submit his own report with his own data analysis. Reports are due one week after the completion of the investigation, unless noted below. Reports not submitted promptly at the start of class are late, and will be marked off 50%. You have a week-long "grace period" in which to submit your report for half credit, but I do not accept reports thereafter.

5. Practical exams do not consume the entire class period and are not comprehensive. Nevertheless, the same policy pertains in lab and lecture. Contact me ASAP if you must miss an exam. Regardless of your excuse, the later the make-up, the harder the test.

Lab reports	Course Grading	
	Date due	Points
1. Probability & statistics	Jan 26	8
2. <i>Drosophila</i> familiarization	Jan 26	5
3. Dihybrid crosses in corn	Feb 9	8
4. Variable expressivity	Feb 16	6
5. Incomplete penetrance	Mar 2	8
6. Linkage analysis	Mar 23	12
7. Human karyotype analysis	Mar 30	12
8. Chromatography of eye pigments	Apr 8	10
9. Protein electrophoresis	Apr 20	12
10. Selection and genetic drift	Apr 27	24
TOTAL for lab reports		105
TWO lab quizzes @ 40 pts ea		80
Lab performance		15
COURSE TOTAL		200

Spring 2011 Syllabus
Genetics Labs 305.L01 & 305.L03
 R. T. Dillon

Readings are from my *Genetics Laboratory Manual*, available at the bookstore.

Date	Topic & Exercise	Readings
Jan 11, 12	Introduction	-
Jan 18, 19	Probability & Statistics	Inv. 1
Jan 25, 26	<i>Drosophila</i> familiarization Set up two experiments with the "Lobed" gene: - A comparison of variation in expressivity due to genetics and environment ("expressivity") - Incomplete penetrance in a monohybrid cross ("penetrance")	Inv. 3 Inv. 4
Feb 1, 2	Independent assortment and gene interaction in maize Set up selection & drift experiments ("S&D") Clear penetrance & expressivity experiments	Inv. 2 Inv. 5
Feb 8, 9	Set up trihybrid cross for gene mapping experiment ("THC") Analysis of variable expressivity Clear S&D experiments	Inv. 6 Inv. 4
Feb 15, 16	Count & transfer F1 from S&D experiments Clear penetrance experiment Clear parentals from THC	Inv. 5
Feb 22, 23	Analysis of incomplete penetrance in a monohybrid cross Make THC test cross Clear S&D experiments	Inv. 4
Mar 1, 2	Lab Quiz Count & transfer F2 from S&D experiments Clear F1 from THC	Inv. 5
Mar 8, 9	(Spring Break) Instructor will clear S&D experiments	-
Mar 15, 16	Linkage analysis	Inv. 6
Mar 22, 23	Human cytogenetics Count & transfer F3 from S&D experiments	Inv. 7 Inv. 5
Mar 29, 30	Chromatography of eye pigments Clear S&D experiments	Inv. 8
Apr 5, 6	Protein electrophoresis	Inv. 9
Apr 12, 13	Count F4 and terminate S&D experiments Selection and genetic drift	Inv. 5
Apr 19, 20	Lab Quiz	-

GENETICS BIOL 305L-02

Agnes Ayme-Southgate

INSTRUCTOR: Agnes Ayme-Southgate
 Office: Science Building, room 218B
 Phone: 953-6544
 e-mail: southgatea@cofc.edu

My office visit times are Wednesday 10-11:30am, as well as Tuesday and Thursday after class or simply stop by. If you need an appointment, the best way to contact me is by e-mail (southgatea@cofc.edu), providing me with times when you are available. I check my e-mail frequently and will give you a specific meeting time in return.

IMPORTANT DATES

01/14/2011	Drop/Add
03/06-13/2011	Spring Break
03/14/2011	last day for W
04/25/2011	LAST DAY OF CLASS

COURSE OBJECTIVES

This lecture is designed to:

1. excite your imagination and love of biology.
2. give examples of the main concepts of Mendelian. Understand the scientific process
3. develop information gathering, critical and analytical skills

Course policies

1. The **Genetics Laboratory** (RHSC 200) is open essentially every day during regular business hours.
2. The **Lab Manual** is available from the College bookstore. The nine investigations it contains are listed on your lab schedule. Please read the introduction and be familiar with each investigation before class.
3. **Attendance.** You are expected to do your share of the work. Many of the labs (especially the fruit fly ones) can get tedious, and it's unfair to expect your lab partner to do all the work if you miss a lab. So if you're sick, please **send me and your partner an e-mail** so arrangements can be made. Some of the investigations may be impossible to make up, although you can get the data later. Being a Thursday lab, we can try and make it up on Friday.

4. **Lab reports** are variably-formatted. There will be questions to answer and analyses to perform for each investigation. You must work closely with your partner to gather the data for most lab reports, but **please think and write independently**. Everyone should submit his own lab report with his own data analysis. Reports are due on the week noted in our course grading. Lab reports not submitted promptly at the start of class are late, and will be marked off 50%. You have a week-long "grace period" in which to submit your report for half credit, but reports will not be accepted thereafter.

Syllabus

Readings are from Dr. Dillon's *Genetics Laboratory Manual*, available at the bookstore.

Date	Topic & Exercise	Readings
Jan 13	Introduction	-
Jan 20	Probability & Statistics	Inv. 1
Jan 27	<i>Drosophila</i> familiarization Set up two experiments with the "Lobed" gene: - A comparison of variation in expressivity due to genetics and environment ("expressivity") - Incomplete penetrance in a monohybrid cross ("penetrance")	Inv. 3 Inv. 4
Feb 3	Independent assortment and gene interaction in maize Set up selection & drift experiments ("S&D") Clear penetrance & expressivity experiments	Inv. 2 Inv. 5
Feb 10	Set up trihybrid cross for gene mapping experiment ("THC") Analysis of variable expressivity Clear S&D experiments	Inv. 6 Inv. 4
Feb 17	Count & transfer F1 from S&D experiments Clear penetrance experiment Clear parentals from THC	Inv. 5
Feb 24	Analysis of incomplete penetrance in a monohybrid cross Make THC test cross Clear S&D experiments	Inv. 4
Mar 3	Midterm Count & transfer F2 from S&D experiments Clear F1 from THC	Inv. 5
Mar 10	(Spring Break) Instructor will clear S&D experiments	-
Mar 17	Linkage analysis	Inv. 6

	Count & transfer F3 from S&D experiments	Inv. 5
Mar 24	Human cytogenetics Clear S&D experiments	Inv. 7
Mar 31	Chromatography of eye pigments Count & transfer F4 from S&D experiments	Inv. 8
Apr 7	Protein electrophoresis	Inv. 9
Apr 14	Count F4 and terminate S&D experiments Selection and genetic drift	Inv. 5
Apr 21	Lab Final	-

Course grading

LAB REPORT	Due Date	POINTS	TOTALS
1. Probability and Statistics	Jan 27	8	
2. <i>Drosophila</i> familiarization	Jan 26	5	
3. Dihybrid crosses in corn	Feb 10	8	
4a. Variable expressivity	Feb 17	6	
4b. Incomplete penetrance	Mar 3	8	
6. Chromosome mapping	Mar 24	12	
7. Human cytogenetics	April 1	12	
8. Chromatography of eye pigments	Apr 9	12	
9. Protein electrophoresis	Apr 21	14	
5. Selection and genetic drift	Apr 28	10	
TOTAL for lab reports			95
LAB EXAMS, two @ 40 pts/50.			90
Lab performance			15
COURSE TOTAL			200

SCALE:

92 and above: A
90-91.9: A-
87-89.9: B+
83-86.9: B
80-82.9: B-
77-79.9: C+
74-76.9: C
70-73.9: C-
67-69.9: D+
64-66.9: D
60-63.9: D-
below 60: F

HONOR CODE AND ACADEMIC INTEGRITY

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each instance is examined to determine the degree of deception involved.

Incidents where the professor believes the student's actions are clearly related more to ignorance, miscommunication, or uncertainty, can be addressed by consultation with the student. We will craft a written resolution designed to help prevent the student from repeating the error in the future. The resolution, submitted by form and signed by both the professor and the student, is forwarded to the Dean of Students and remains on file.

Cases of suspected academic dishonesty will be reported directly to the Dean of Students. A student found responsible for academic dishonesty will receive a XF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student's transcript for two years after which the student may petition for the X to be expunged. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

It is important for students to remember that unauthorized collaboration--working together without permission-- is a form of cheating. Unless a professor specifies that students can work together on an assignment and/or test, no collaboration is permitted. Other forms of cheating include possessing or using an unauthorized study aid (such as a PDA), copying from another's exam, fabricating data, and giving unauthorized assistance.

Remember, research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the professor.

Students can find a complete version of the Honor Code and all related processes in the *Student Handbook* at

http://www.cofc.edu/studentaffairs/general_info/studenthandbook.html.

Genetics Lab 305.L02 Wednesday

Course Policy, Fall 2011

R. T. Dillon RHSC Rm 200A

953-8087, DillonR@cofc.edu

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4. Lab reports are quite informal. Just do the analysis and answer the questions at the end of each exercise. You must work closely with your lab partner to gather data, but **please think independently**. Everyone should submit his own report with his own data analysis. Reports are due one week after the completion of the investigation, unless noted below. Reports not submitted promptly **at the start of class** are late, and will be marked off 50%. You have a week-long "grace period" in which to submit your report for half credit, but I do not accept reports thereafter.

5. Practical exams do not consume the entire class period and are not comprehensive. Nevertheless, the same policy pertains in lab and lecture. Contact me ASAP if you must miss an exam. Regardless of your excuse, the later the make-up, the harder the test.

<u>Lab reports</u>	<u>Course Grading</u> Date due	Points
1. Probability & statistics	Sept 7	8
2. <i>Drosophila</i> familiarization	Sept 7	5
3. Dihybrid crosses in corn	Sept 21	8
4. Variable expressivity	Sept 28	6
5. Incomplete penetrance	Oct 12	8
6. Linkage analysis	Oct 26	12
7. Human karyotype analysis	Nov 2	12
8. Chromatography of eye pigments	Nov 9	10
9. Protein electrophoresis	Nov 30	12
10. Selection and genetic drift	Nov 30	24
TOTAL for lab reports		105
TWO lab quizzes @ 40 pts ea		80
Lab performance		15
COURSE TOTAL		200

Tuesday Schedule, Fall 2011
Genetics Lab 305.L01

R. T. Dillon

Readings are from my *Genetics Laboratory Manual*, available at the bookstore.

Date	Topic & Exercise	Readings
Aug 23	Introduction	-
Aug 30	Probability & Statistics	Inv. 1
	<i>Drosophila</i> familiarization	
	Set up two experiments with the "Lobed" gene:	
Sept 6	- A comparison of variation in expressivity due to genetics and environment ("expressivity")	Inv. 3
	- Incomplete penetrance in a monohybrid cross ("penetrance")	Inv. 4
	Independent assortment and gene interaction in maize	
Sept 13	Set up selection & drift experiments ("S&D")	Inv. 2
	Clear penetrance & expressivity experiments	Inv. 5
	Analysis of variable expressivity	
Sept 20	Set up trihybrid cross for gene mapping experiment ("THC")	Inv. 6
	Clear S&D experiments	Inv. 4
	Count & transfer F1 from S&D experiments	
Sept 27	Clear penetrance experiment	Inv. 5
	Clear parentals from THC	
	Analysis of incomplete penetrance in a monohybrid cross	
Oct 4	Make THC test cross	Inv. 4
	Clear S&D experiments	
	Lab Quiz	
Oct 11	Clear F1 from THC	Inv. 5
	Count & transfer F2 from S&D experiments	
Oct 18	Fall Break	
	S&D experiments cleared	
Oct 25	Linkage analysis	Inv. 6
Nov 1	Human cytogenetics	Inv. 7
	Count & transfer F3 from S&D experiments	Inv. 5
Nov 8	Chromatography	Inv. 8
	Clear S&D experiments	
Nov 15	Protein electrophoresis	Inv. 9
Nov 22	Count F4 and terminate S&D experiments	Inv. 5
	Selection and genetic drift	
Nov 29	Lab Quiz	

Genetics Lab 305.L01 Tuesday

Course Policy, Fall 2011

R. T. Dillon RHSC Rm 200A

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See the Genetics Lab website
<http://dillonr.people.cofc.edu/genelab.htm>

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4. Lab reports are quite informal. Just do the analysis and answer the questions at the end of each exercise. You must work closely with your lab partner to gather data, but **please think independently**. Everyone should submit his own report with his own data analysis. Reports are due one week after the completion of the investigation, unless noted below. Reports not submitted promptly **at the start of class** are late, and will be marked off 50%. You have a week-long "grace period" in which to submit your report for half credit, but I do not accept reports thereafter.

5. Practical exams do not consume the entire class period and are not comprehensive. Nevertheless, the same policy pertains in lab and lecture. Contact me ASAP if you must miss an exam. Regardless of your excuse, the later the make-up, the harder the test.

<u>Lab reports</u>	<u>Course Grading</u> <u>Date due</u>	<u>Points</u>
1. Probability & statistics	Sept 6	8
2. <i>Drosophila</i> familiarization	Sept 6	5
3. Dihybrid crosses in corn	Sept 20	8
4. Variable expressivity	Sept 27	6
5. Incomplete penetrance	Oct 11	8
6. Linkage analysis	Nov 1	12
7. Human karyotype analysis	Nov 8	12
8. Chromatography of eye pigments	Nov 15	10
9. Protein electrophoresis	Nov 29	12
10. Selection and genetic drift	Dec 6	24
TOTAL for lab reports		105
TWO lab quizzes @ 40 pts ea		80
Lab performance		15
COURSE TOTAL		200

GENETICS BIOL 305L-01,02,03

Bharathi Viswanathan, PhD

INSTRUCTOR: Bharathi Viswanathan
 Office:
 Phone:
 e-mail:

My office visit times are Tuesdays 4:45-5:30 p.m, as well as Tuesday/Wednesday/Thursday after class. If you need an appointment, the best way to contact me is by e-mail (@cofc.edu), providing me with times when you are available. I check my e-mail frequently and will give you a specific meeting time in return.

IMPORTANT DATES

08/27/2012	Drop/Add
10/13/2010- 10/15/2012	Fall Break
10/29/2012	last day for W
12/03/2012	LAST DAY OF CLASS

COURSE OBJECTIVES

This lecture is designed to:

1. excite your imagination and love of biology.
2. give examples of the main concepts of Mendelian. Understand the scientific process
3. develop information gathering, critical and analytical skills

Course policies

1. The **Genetics Laboratory** (RHSC 200) is open essentially every day during regular business hours.

2. The Lab Manual for your experiment would be uploaded into OAKS before the required lab session. There are a total of eight investigations that would be performed as a part of BIOL 305L. Please read the introduction and be familiar with each investigation before class.

3. **Attendance.** You are expected to do your share of the work. Many of the labs can get tedious, and it's unfair to expect your lab partner to do all the work if you miss a lab. So if you're sick, please **send me and your partner an e-mail** so arrangements can be

made. Most of the investigations may be impossible to make up. There is a possibility of making up only if you can make arrangements with your partner and get yourself schedule to another section of the BIO 305.

4. **Lab reports** are variably-formatted. There will be questions to answer and analyses to perform for each investigation. You must work closely with your partner to gather the data for most lab reports, but **please think and write independently**. Everyone should submit his own lab report with his own data analysis. Reports are due on the week noted in our course grading. Lab reports not submitted promptly at the start/end of class are late, and will be marked off 50%. You have a week-long "grace period" in which to submit your report for half credit, but reports will not be accepted thereafter.

Syllabus

Readings are from Dr. Dillon's *Genetics Laboratory Manual*, available at the bookstore.

Date	Topic & Exercise	Readings
Aug 21/22/23	Probability & Statistics	Inv. 1
Aug 28/29/30	Independent assortment in corn	Inv. 2
Sep 4/5/6	<i>Drosophila</i> familiarization	Inv. 3
Sep 11/12/13	Set up of back crosses with Wild type and various mutants of <i>Drosophila</i>	Inv. 4
Sep 18/19/20	Molecular genetics of PTC tasting (Hard-Weinberg and population genetics)- Collect cells and extract DNA	Inv. 5
Sep 25/26/27	Count & transfer F1 from backcross experiments and set up F2	Inv. 4 (contd)
	Set up the PCR for the PTC experiment	Inv. 5 (contd)
Oct 2/3/4	Set up two experiments with the "Lobed" gene: - A comparison of variation in expressivity due to genetics and environment ("expressivity") - Incomplete penetrance in a monohybrid cross ("penetrance")	Inv 6
	MIDTERM	
Oct 9/10/11	Count & record F2 from backcross experiments	Inv. 4 (contd)

Oct 16/17/18	Count & transfer F1 from "Lobed" experiments and set up F2	Inv 6 (contd)
	Set up the Restriction Digestion of the PCR product from the PTC experiment	Inv 5 (contd)
Oct 23/24/25	Run the gel electrophoresis for the PTC experiment. Analyse data and discussion on population genetics chi square	Inv. 5 (contd)
Oct 30/31, Nov 1	Count & record F2 from "Lobed" experiments	Inv. 6 (contd)
Nov 7,8	Bioinformatics	Inv. 7
Nov 13/14/15	Chromatography of eye pigments	Inv. 8
Nov 20	Bioinformatics	Inv. 7
Nov 27/28/29	FINAL EXAM	-

Course grading

LAB REPORT	Due Date	POINTS	TOTALS
1. Probability and Statistics	Jan 27	8	
2. <i>Drosophila</i> familiarization	Jan 26	5	
3. Dihybrid crosses in corn	Feb 10	8	
4a. Variable expressivity	Feb 17	6	
4b. Incomplete penetrance	Mar 3	8	
6. Chromosome mapping	Mar 24	12	
7. Human cytogenetics	April 1	12	
8. Chromatography of eye pigments	Apr 9	12	
9. Protein electrophoresis	Apr 21	14	
5. Selection and genetic drift	Apr 28	10	
TOTAL for lab reports			95
LAB EXAMS, two @ 40 pts/50.			90
Lab performance			15
COURSE TOTAL			200

SCALE:

92 and above: A
90-91.9: A-
87-89.9: B+
83-86.9: B

80-82.9: B-
77-79.9: C+
74-76.9: C
70-73.9: C-
67-69.9: D+
64-66.9: D
60-63.9: D-
below 60: F

HONOR CODE AND ACADEMIC INTEGRITY

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each instance is examined to determine the degree of deception involved.

Incidents where the professor believes the student's actions are clearly related more to ignorance, miscommunication, or uncertainty, can be addressed by consultation with the student. We will craft a written resolution designed to help prevent the student from repeating the error in the future. The resolution, submitted by form and signed by both the professor and the student, is forwarded to the Dean of Students and remains on file.

Cases of suspected academic dishonesty will be reported directly to the Dean of Students. A student found responsible for academic dishonesty will receive a XF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student's transcript for two years after which the student may petition for the X to be expunged. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

It is important for students to remember that unauthorized collaboration--working together without permission-- is a form of cheating. Unless a professor specifies that students can work together on an assignment and/or test, no collaboration is permitted. Other forms of cheating include possessing or using an unauthorized study aid (such as a PDA), copying from another's exam, fabricating data, and giving unauthorized assistance.

Remember, research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the professor.

Students can find a complete version of the Honor Code and all related processes in the *Student Handbook* at http://www.cofc.edu/studentaffairs/general_info/studenthandbook.html.

GENETICS BIOL 305L-01, 02, 03

Bharathi Viswanathan, PhD

The best time to meet me would be after class on Tuesdays/Wednesdays/Thursdays. If you need an appointment, the best way to contact me is by e-mail. I check my e-mail frequently and will give you a specific meeting time in return. My email ID is viswanathanb@cofc.edu

BIOL 305L 01 T 01:40 pm-04:40 pm RHSC 200
 BIOL 305L 03 W 01:40 pm-04:40 pm RHSC 200
 BIOL 305L 02 R 01:40 pm-04:40 pm RHSC 200

Covering for the first month: Agnes Ayme-Southgate (southgatea@cofc.edu)

IMPORTANT DATES

01/09/13	Classes Start
01/15/13	Last Day to Drop/Add
01/21/13	Martin Luther King B'day. No class
03/02/13-03/10/13	Spring Break
03/25/13	Last day for W
04/24/13	LAST DAY OF CLASS

COURSE OBJECTIVES

This lecture is designed to:

1. Excite your imagination and love of biology.
2. Give examples of the main concepts of Mendelian Genetics and to gain an insight into molecular genetics.
3. Understand the scientific process of gathering information and further developing critical and analytical skills to analyze the gathered data.

Course policies

1. The **Genetics Laboratory** (RHSC 200) is open essentially every day during regular business hours.

2. **Attendance.** You are expected to do your share of the work. Many of the labs can get tedious, and it's unfair to expect your lab partner to do all the work if you miss a lab. So if you're sick, please **send me and your partner an e-mail** so that arrangements can be made. Most of the investigations may be impossible to make up. There is a possibility of a make up only if you can make arrangements with your partner and get yourself scheduled into another section of the BIOL 305L within the same week.

3. **Lab reports** are variably-formatted. There will be questions to answer and analyses to perform for each investigation. You must work closely with your partner to gather the data for most lab reports, but **please think and write independently**. Everyone should submit his/her own lab report with his/her own data analysis. The data in your lab report should be clear, legible and neat. **The step wise calculations done to obtain the results should be shown, as you will be graded accordingly.** Reports are due either at the end of lab on a week after completion of the investigation or on the week noted in our course grading. Lab reports not submitted promptly at the start/end of class are **late, and will be marked off 50%**. You have a week-long "grace period" in which you could submit your report for half credit, but reports will not be accepted thereafter.

4. **Lab Safety:** A list of safety policy and procedures will be distributed in the first class and an acknowledgement of receipt of the same will be obtained. It is expected that these procedures be followed while coming to lab. **Failure to follow the safety guidelines may debar you from performing the experiment** on the given day and you will **not** receive any grades for the same.

5. **Lab Cleanliness:** It is as important to clean the lab after your experiment by putting away the materials used in the right place, cleaning your culture bottles/apparatus used and keeping the area tidy. Failure to do so will be reflected in the grades for that experiment. Further it is important that **not only you but your partner** too ensures clean practices.

HONOR CODE AND ACADEMIC INTEGRITY

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Remember, research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the professor.

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Syllabus

<u>Date</u>	<u>Topic</u>	<u>Readings</u>
Jan 15/16/17	Probability and Statistics	Inv 1
Jan 22/23/24	Drosophila Familiarization	Inv 2
Jan 29/30/31	Set up two experiments with the "Lobed" gene: (a) A comparison of variation in expressivity (b) Incomplete penetrance Introduction to Bioinformatics	Inv 3 Inv 4
Feb 5/6/7	Molecular Genetics of PTC Tasting - Collect cells and extract DNA Bioinformatics	Inv 5 Inv 4 (contd)
Feb 12/13/14	Set up PCR for PTC experiment Count & Transfer F1 from "Lobed" experiments and set up F2.	Inv 5 (contd) Inv 3 (contd)
Feb 19/20/21	Set up Restriction Digestion of PCR product from PTC experiment MIDTERM	Inv 5 (contd)
Feb 26/27/28	Set up back crosses with Wild type and various mutants of <i>Drosophila</i> Count and record F2 from "Lobed" experiment	Inv 6 Inv 3 (contd)
Mar 5/6/7	SPRING BREAK	
Mar 12/13/14	Count & Transfer F1 from backcross experiments and set up F2. Run gel electrophoresis for PCR product Discuss Hardy Weinberg and Population genetics for PTC	Inv 6 (contd) Inv 5 (contd)
Mar 19/20/21	Independent Assortment in corn	Inv 7
Mar 26/27/28	Count and record F2 from backcross experiment	Inv 6 (contd)
Apr 2/3/4	Chromatography of eye pigments	Inv 8
Apr 9/10/11	Karyotyping	Inv 9
Apr 16/17/18	FINAL EXAM	
Apr 25	Collect your final exam answer sheets	

Course grading

LAB REPORT	Due Date	POINTS	TOTAL
1. Probability and Statistics	Jan 15/16/17	10	
2. Drosophila Familiarization	Jan 22/23/24	10	
3. Drosophila "Lobed" gene experiment	Mar 12/13/14	20	
4. Bioinformatics	Feb 5/6/7	10	
5. Molecular Genetics of PTC	Mar 19/20/21	15	
6. Drosophila Backcross experiment	Apr 2/3/4	20	
7. Independent Assortment in Corn	Mar 26/27/28	10	
8. Chromatography of eye pigments	Apr 9/10/11	15	
9. Karyotyping	Apr 9/10/11	10	
TOTAL for Lab reports			120
MIDTERM			40
FINAL EXAM			80
Lab Performance			10
COURSE TOTAL			250

GRADE SCALE:

92 and above:	A
90-91.9	: A-
87-89.9	: B+
83-86.9	: B
80-82.9	: B-
77-79.9	: C+
74-76.9	: C
70-73.9	: C-
67-69.9	: D+
64-66.9	: D
60-63.9	: D-
below 60	: F

GENETICS BIOL 305L-01, FALL 2014.

Instructor: Bharathi Viswanathan, PhD

The best time to meet me would be after class on Mondays. If you need an appointment, the best way to contact me is by e-mail.

Office hours: Monday 12-1 pm
Office: 65 Coming Street, Room 101

Email: viswanathanb@cofc.edu

BIOL 305L 01 M 2:00 p.m. – 5:00 p.m. SSMB 141

IMPORTANT DATES

8/25	Class start
8/25	Last day for Drop/Add
10/23	Last Day for W
11/3	Fall Break
12/1	Last day of class

COURSE OBJECTIVES

This lecture is designed to:

1. Excite your imagination and love for biology.
2. Give examples of the main concepts of Mendelian Genetics and to gain insight into molecular genetics and bioinformatics.
3. Understand the scientific process of gathering information and further developing critical and analytical skills to analyze the gathered data.

Course policies

1. The **Genetics Laboratory** (SSMB 141) is open essentially every day during regular business hours.
2. The **Lab Manual** for your experiment would be uploaded into OAKS before the scheduled lab session. There are a total of seven investigations that would be performed as a part of BIOL 305L. Please read the introduction and be familiar with each investigation before class.

3. **Attendance.** You are expected to do your share of the work. Many of the labs can get tedious, and it's unfair to expect your lab partner to do all the work if you miss a lab. So if you're sick, please **send me and your partner an e-mail** so that arrangements can be made. Most of the investigations may be impossible to make up. There is a possibility of a make up only if you can make arrangements with your partner.

4. **Lab reports** are variably-formatted. There will be questions to answer and analyses to perform for each investigation. You must work closely with your partner to gather the data for most lab reports, but **please think and write independently**. Everyone should submit his/her own lab report with his/her own data analysis. The data in your lab report should be **clear, legible and neat**. The **step wise** calculations done to obtain the results should be shown, as you will be graded accordingly. Reports are due either at the end of lab on a week after completion of the investigation or on the week noted in our course grading. Lab reports not submitted promptly at the start/end of class are late, and will be marked off 50%. You have a week-long "**grace period**" in which you could submit your report for half credit, but reports will not be accepted thereafter.

5. **Lab Safety:** A list of safety policy and procedures will be distributed in the first class and an acknowledgement of receipt of the same will be obtained. It is expected that these procedures be followed while coming to lab. **Failure to follow the safety guidelines may debar you from performing the experiment** on the given day and you will **not** receive any grades for the same.

6. **Lab Cleanliness:** It is as important to clean the lab after your experiment by putting away the materials used in the right place, cleaning your culture bottles/apparatus used and keeping the area tidy. Failure to do so will be reflected in the grades for that experiment. Further it is important that **not only you but your partner** too ensures clean practices.

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Incidents where the instructor determines the student's actions are clearly related more to a misunderstanding will be handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed by both the instructor and the student will be forwarded to the Dean of Students and placed in the student's file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XF in the course, indicating failure of the course due to academic dishonesty. This grade will

appear on the student's transcript for two years after which the student may petition for the X to be expunged. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

Students should be aware that unauthorized collaboration--working together without permission-- is a form of cheating. Unless the instructor specifies that students can work together on an assignment and/or test, no collaboration is permitted. Other forms of cheating include possessing or using an unauthorized study aid (such as a smart phones), copying from others' exams, fabricating data, and giving unauthorized assistance.

Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor.

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COLLEGE of CHARLESTON

SCHOOL OF SCIENCES AND MATHEMATICS

SAFETY POLICY AND PROCEDURES

The School of Sciences and Mathematics of the College of Charleston understands that the safety of our students, staff and faculty is of paramount importance. Engendering a safety culture is an important part of our mission in teaching and doing science. Each department, course of instruction, or research lab may require higher standards or procedures. The policies and procedures set forth below are understood to be minimum requirements across our departments.

In this document, the term "laboratory" is meant for a work space/facility where chemicals, biological agents, or equipment is used for research and/or instruction.

No one (student, staff, faculty, or visitor) will be allowed in a laboratory (teaching or research) to perform experiments or where experiments may be in progress unless these regulations are followed.

Students dismissed from a teaching lab due to violations of the safety procedures will not be allowed to re-enter the laboratory until authorized to do so by their supervisor (instructor) and, in the case of research laboratories, by the department chair or designee. Any course work missed because of a violation of these guidelines cannot be made up at another time (or by an extension of the lab period) and will be treated as an unexcused absence.

1. You are responsible for knowing the biological, chemical, electrical, ergonomic, mechanical, and physical hazards associated with the equipment and materials that are being utilized in the laboratory. Listen to all instructions and ask questions about that which you do not understand.
2. Know the location of safety equipment: telephones, emergency shower, eyewash, fire extinguisher, fire alarm pull.
3. Know the appropriate emergency response procedures. If there is an injury or emergency, call 953-5611.
4. Do not work alone in the laboratory if you are working with hazardous materials or equipment.
5. Use hazardous chemicals, equipment, and biological agents only as directed and for their intended purpose.
6. Do not engage in horseplay, pranks or other acts of mischief while in lab.
7. Drinking, eating, and application of cosmetics is forbidden in laboratories where chemicals or biohazards are present. Smoking is forbidden in all College buildings.
8. Appropriate personal protective equipment shall be worn. The dress code for laboratory work when using chemicals, biological or physical hazards, or when instructed to do so by the laboratory supervisor is as follows:
 - a) Wear safety glasses or goggles at all times.
 - b) No exposed skin on arms, legs or torso.
 - c) Wear lab coats or other approved protective garments.
 - d) Wear gloves or other personal protective equipment (PPE) as directed by the instructor or mandated by prudent practices based on the chemicals being handled. If in doubt, wear appropriate gloves. Latex is not permitted. Avoid cross-contamination.
 - e) Remove PPE (gloves and lab coat) when exiting the laboratory.
 - f) Wash your hands, even if gloves were used, before leaving a lab where you did any lab work.

- g) Closed toe shoes are required. The heel and top of foot must be covered. High heeled shoes, sandals, and perforated shoes are not permitted.
- h) Confine long hair and loose clothing.
9. Inspect equipment or apparatus for damage before adding chemical reagents or biological samples or energizing electrical equipment. Do not use damaged equipment.
10. Never remove chemicals, biological samples, or laboratory equipment from a lab without proper authorization.
11. Presume that all chemicals and biological samples used in the laboratory are hazardous for you and the environment, unless instructed otherwise.
12. Never leave an experiment unattended unless proper safety precautions are in place.
13. Read all labels on chemicals twice before using them in the lab. Read all instructions twice for the operation of any equipment or machinery.
14. Properly and safely dispose of all waste materials.
15. Treat sharps and broken glassware containers carefully.
- a) Broken glass should be disposed of in properly marked safety containers. All sharps (needles, razor blades, etc.) used for any purpose must be disposed of in specially labeled SHARPS containers.
- b) Do not place contaminated glass in the broken glassware container. Consult your supervisor.
- c) Waste chemicals and contaminated PPE should be discarded as directed.
16. When using a reagent, replace the lid immediately. Never return unused reagents to stock bottles. Take only the amount needed for your experiment.
17. All chemicals and biological samples/media are to be disposed of in appropriately labeled containers. Specific instructions for each material will be provided. Pay attention to waste container labels before adding the material to be discarded.
18. Use good personal hygiene. Keep your hands and face clean. Wash hands thoroughly with soap and water after handling any chemical or biological agent.
19. Keep the work area clean and uncluttered with chemicals and equipment. Clean up the work area on completion of an operation or an experiment. Before leaving the laboratory, you are responsible for making sure your lab area is clean and organized.
20. Never store a chemical or biological specimen in an unlabeled container.
20. Always have your College of Charleston identification and insurance information with you when working in a laboratory. MedicAlert identification must be worn if you have any potential life-threatening chemical sensitivities or medical conditions.
21. Report any accident or injury, however minor, to your teaching assistant, instructor, or lab supervisor immediately. An accident report form must be completed and forwarded to the department chair, dean, and to the Director of Environmental Health and Safety.
- If you have questions/concerns about safety in the lab please first consult your instructor. If these are not answered, please see the department chair. Finally, you may consult the director of Environmental Health and Safety, Randy Beaver at 3-6802 or beaverr@cofc.edu**

Adopted: March 7, 2012

Syllabus

Date	Topic & Exercise	Readings
8/25	Probability & Statistics	Inv. 1
9/1	<i>Drosophila</i> familiarization	Inv. 2
9/8	Lobed: Set up two experiments with the "Lobed" gene: - A comparison of variation in expressivity due to genetics and environment ("expressivity") - Incomplete penetrance in a monohybrid cross ("penetrance")	Inv. 3
9/15	Bioinformatics	Inv.4
9/22	Record data for Lobed experiment. Set up F2 crosses	Inv. 3 (contd)
9/29	Set up of crosses with Wild type and various mutants of <i>Drosophila</i>	Inv 5
10/6	Count F2 for Lobed experiment MIDTERM	Inv. 3 (contd)
10/13	Count & transfer F1 from cross experiments and set up F2.	Inv. 5(contd)
10/20	Independent assortment in corn	Inv. 6
10/27	Count & record F2 from cross experiments	Inv. 5 (contd)
11/3	FALL BREAK	
11/10	Molecular Genetics of PTC	Inv. 7
11/17	Molecular Genetics of PTC (Contd)	Inv 7 (Contd)
11/24	FINAL EXAM	
12/1	Collect your final exam answer sheets	

Course grading

LAB REPORTS	DUE DATE	POINTS	TOTALS
1. Probability and statistics	8/25	15	
2. Drosophila Familiarization	9/1	8	
3. Drosophila "lobed" gene expt	10/13	20	
4. Bioinformatics	9/22	10	
5. Drosophila cross expt	11/10	15	
6. Independent assortment in corn	10/27	12	
7. Molecular genetics of PTC	11/24	20	
TOTAL FOR LAB REPORTS			100
MID TERM			30
FINAL EXAM			70
			200

GRADE SCALE:

92 and above: A
90-91.9 : A-
87-89.9 : B+
83-86.9 : B
80-82.9 : B-
77-79.9 : C+
74-76.9 : C
70-73.9 : C-
67-69.9 : D+
64-66.9 : D
60-63.9 : D-
below 60 : F

Genetics Lab 305L Course Policy, Spring 2015

Sections Monday L01, Tuesday L02, Wednesday Morning L03, and Wednesday Afternoon L04

R. T. Dillon (SCRA Innovation Center, 645 Meeting Street)

953-8087, DillonR@cofc.edu

1. Catalog Description – An introduction to the principles of heredity using common experimental organisms. Recent techniques in molecular genetics are also covered. Biology 211 and 211D (Biodiversity) is a prerequisite, and Genetics Lecture 305 is a pre-requisite or co-requisite. Math 250 (Statistical Methods) is a prerequisite for all 300-level biology classes.
2. Explicit Learning Outcome – “It is the business of a University to impart to the rank and file of the men whom it trains the right thought of the world, the thought which it has tested and established, the principles which have stood through the seasons and become at length part of the immemorial wisdom of the race. The object of education is not merely to draw out the powers of the individual mind: it is rather its right object to draw all minds to a proper adjustment to the physical and social world in which they are to have their life and their development: to enlighten, strengthen and make fit. The business of the world is not individual success, but its own betterment, strengthening, and growth in spiritual insight-- 'So teach us to number our days, that we may apply our hearts unto wisdom' is its right prayer and aspiration.” Woodrow Wilson, 1896.
3. The Genetics Laboratory (Relocated to SSMB 141 during the renovation) is open essentially every day during regular school hours, although four sections of Molecular Biology Lab meet in the room later in the week, as well as our four sections of Genetics Lab. I will have “office hours” in SSMB 141 on **Monday, Tuesday and Wednesday 1 – 2:00**, and will certainly be present at many other times as well, but it is always best to make an appointment.
4. Lab Manual is available from the College bookstore. Please read the introduction and be familiar with each investigation before coming to class.
5. Attendance. You are expected to do your share of the work. Many of the investigations (especially the fruit fly ones) can get tedious, and it is unfair to expect your lab partner to do all the work if you miss a class. So if you're sick, please call 953-8087 so arrangements can be made. Some of the investigations may be impossible to make up, although you can get the data later.
6. Lab reports are variably-formatted. There will be questions to answer and analyses to perform after each exercise. You must work closely with your lab partner to gather data for most lab reports, but **please think independently**. Everyone should submit his own report with his own data analysis. Reports are due one week after the completion of the investigation, unless noted below. Reports not submitted promptly **at the start of class** are late, and will be marked off 50%. If you are sick, send me your lab report by email or by courier. You have a week-long “grace period” in which to submit your report for half credit, but lab reports will not be accepted thereafter.
7. Practical quizzes do not consume the entire class period and are not comprehensive. Nevertheless, the same policy pertains in lab and lecture. Contact me ASAP if you must miss a quiz. Regardless of your excuse, the later the make-up, the harder the test.
8. Watch the Genetics Lab website for “News, Announcements, and Reminders” as the semester proceeds: <http://dillonr.people.cofc.edu/genclab.htm>
Among the many useful resources available from the course site is a pdf download entitled, “Dr. Dillon’s Teaching Philosophy.”

Genetics Lab 305L
R. T. Dillon

COURSE GRADING, Spring 2015

LAB REPORT	Due date for Monday.L01	Due date for Tuesday.L02	Due Date for Wednesday.L03 & L04	POINTS	TOTALS
1. Probability and Statistics	Feb 2	Jan 27	Jan 28	8	
2. <i>Drosophila</i> familiarization	Feb 2	Jan 27	Jan 28	5	
3. Dihybrid crosses in corn	Feb 16	Feb 10	Feb 11	8	
4a. Variable expressivity	Feb 23	Feb 17	Feb 18	6	
4b. Incomplete penetrance	Mar 16	Mar 10	Mar 11	8	
6. Chromosome mapping	Mar 30	Mar 24	Mar 25	12	
7. Human cytogenetics	Apr 6	Mar 31	Apr 1	12	
8. Chromatography of eye pigments	Apr 13	Apr 7	Apr 8	10	
9. Protein electrophoresis	Apr 27	Apr 21	Apr 22	12	
5. Selection and genetic drift	May 4	Apr 28	Apr 28	24	
TOTAL for lab reports					105
LAB EXAMS, two @ 40 pts ea.					80
Lab performance					15
COURSE TOTAL					200

Wednesday Schedule, Spring 2015
Genetics Labs 305.L03 and L04
 R. T. Dillon

Readings are from my *Genetics Laboratory Manual*, available at the bookstore.

Date	Topic & Exercise	Readings
Jan 14	Introduction	-
Jan 21	Probability & Statistics	Inv. 1
Jan 28	<i>Drosophila</i> familiarization Set up two experiments with the "Lobed" gene: - A comparison of variation in expressivity due to genetics and environment ("expressivity") - Incomplete penetrance in a monohybrid cross ("penetrance")	Inv. 3 Inv. 4
Feb 4	Independent assortment and gene interaction in maize Set up selection & drift experiments ("S&D") Clear penetrance & expressivity experiments	Inv. 2 Inv. 5
Feb 11	Set up trihybrid cross for gene mapping experiment ("THC") Analysis of variable expressivity Clear S&D experiments	Inv. 6 Inv. 4
Feb 18	Count & transfer F1 from S&D experiments Clear penetrance experiment Clear parentals from THC	Inv. 5
Feb 25	Analysis of incomplete penetrance in a monohybrid cross Make THC test cross Clear S&D experiments	Inv. 4
Mar 4	(Spring Break) Instructor will clear F1 from THC	-
Mar 11	Lab Quiz Count & transfer F2 from S&D experiments	Inv. 5
Mar 18	Linkage analysis	Inv. 6
Mar 25	Human cytogenetics Count & transfer F3 from S&D experiments	Inv. 7 Inv. 5
Apr 1	Chromatography of eye pigments Clear S&D experiments	Inv. 8
Apr 8	Protein electrophoresis	Inv. 9
Apr 15	Count F4 and terminate S&D experiments Selection and genetic drift	Inv. 5
Apr 22	Lab Quiz	-

Return to Genetics Lab 305 L