

## COURSE SYLLABUS FORENSIC BIOLOGY (BSC5406)

### GENERAL INFORMATION

#### PROFESSOR INFORMATION



<b>Instructor:</b>	Prof. Jan A. Sikorsky	<b>Phone:</b>	(561) 568-0833
<b>Office:</b>	NA	<b>Fax:</b>	NA
<b>Office Hours:</b>	By appointment	<b>Email:</b>	Primary - Please use Blackboard course messages Secondary – jsikorsky@envisionexperience.com
<b>Website:</b>	NA		

#### COURSE DESCRIPTION AND PURPOSE

This course exposes students to a comprehensive overview of current and historical theory and application of forensic biology. Major topics covered are: the history/evolution of human identification via forensically informative biological evidence; collection, handling, screening, and typing of biological evidence; interpretation of DNA profiles; and new technologies/advancements impacting forensic DNA typing.

#### COURSE OBJECTIVES

##### General Outcomes:

- *Communication* - Develop effective reading, writing, speaking, listening, and nonverbal communication skills for a variety of audiences.
- *Critical Thinking & Analysis* - Evaluate arguments; separate fact and opinion; recognize points of view; understand implications and consequences, and acknowledge diverse values.
- *Technology and Information Literacy* - Use printed materials, personal communication, observation, and technological applications to find, evaluate, organize and present information in order to achieve educational and professional success.
- *Ethics* - Demonstrate a responsibility for personal, social, professional, educational and natural environments and make informed decisions based on those responsibilities.

#### MAJOR & CURRICULUM OBJECTIVES TARGETED

- Identify types of biological evidence.
- Describe proper procedure for identifying, collecting, preserving, and analyzing biological evidence.
- Discuss the necessary controls used to ensure quality control and the importance of a quality assurance program.
- Recognize common challenges impacting each phase of biological sample processing.

- Evaluate profiles from complicated sample material.
  - Review new trends in forensic biology and their potential impact on future directions of human identification.
  - Recognize the importance weight placed on conclusions established from biological evidence and the resulting impacts to law enforcement, the judicial system, and the common public.
  - Demonstrate proper technique when delivering expert witness testimony
- 

## TEACHING METHODOLOGY

---

This is a fully online course in which all of the instructional materials and activities are delivered through Blackboard, and/or other internet-based media. While exceptions will occur throughout the semester, standard framework for lesson modules will include: independent course text review with question(s) posed for reply via discussion board; content specific recorded powerpoint presentation(s); topic-directed journal article review with directed commentary; and intra-module assessment.

Should you have any specific questions now or as the semester progresses, please contact the professor.

## IMPORTANT INFORMATION

---

### POLICIES

---

Please review [\*\*FIU's Policies webpage\*\*](#). The policies webpage contains essential information regarding guidelines relevant to all courses at FIU, as well as additional information about acceptable netiquette for online courses.

### TECHNICAL REQUIREMENTS/SKILLS

---

One of the greatest barriers to taking an online course is a lack of basic computer literacy. By computer literacy we mean being able to manage and organize computer files efficiently, and learning to use your computer's operating system and software quickly and easily. Keep in mind that this is not a computer literacy course; but students enrolled in online courses are expected to have moderate proficiency using a computer. Please go to the [\*\*What's Required\*\*](#) page to find out more information on this subject.

This course utilizes the following tools:

1. Blackboard Learning Management System
2. Microsoft PowerPoint with Adobe Presentation Plug-in
3. Adobe Flash Player (may be required for some video links)
4. Adobe Connect (may be required for interactive video creation)

Please visit our [\*\*Technical Requirements\*\*](#) webpage for additional information.

### ACCESSIBILITY AND ACCOMMODATION

---

Please visit our [ADA Compliance](#) webpage for information about accessibility involving the tools used in this course.

Please visit [Blackboard's Commitment to Accessibility](#) webpage for more information.

For additional assistance please contact FIU's [Disability Resource Center](#).

## COURSE PREREQUISITES

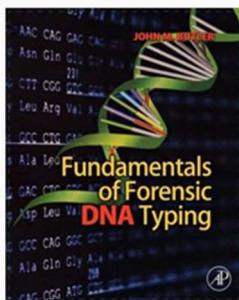
**If the course has prerequisites:** This course requires graduate student status and admission to the forensic science masters program. See the [Course Catalog webpage](#) for specific information.

## PROCTORED EXAM POLICY

Exams/Assessments for this course will be reviewed by the professor directly.

## TEXTBOOK

### (REQUIRED)



#### *Fundamentals of Forensic DNA Typing*

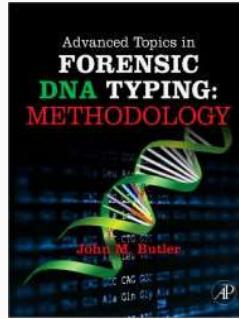
John M. Butler

Elsevier Inc (2010)

ISBN: 978-0-12-374999-4

You may purchase your textbook online at the [FIU Bookstore](#).

### (RECOMMENDED FOR THOSE GOING INTO FORENSIC BIOLOGY)

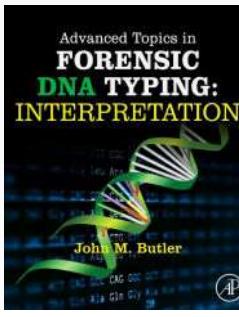


#### *Advanced Topics in Forensic DNA Typing: Methodology*

John M. Butler

Elsevier Inc (2012)

ISBN: 978-0-12-374513-2



#### *Advanced Topics in Forensic DNA Typing: Interpretation*

John M. Butler

Elsevier Inc (2015)

ISBN: 978-0-12-405213-0

## **EXPECTATIONS OF THIS COURSE**

---

This is an online course, which means most (if not all) of the course work will be conducted online. Expectations for performance in an online course are the same for a traditional course. In fact, online courses require a degree of self-motivation, self-discipline, and technology skills which can make these courses more demanding for some students.

### **Students are expected to:**

- **Review the how to get started information** located in the course content
- **Introduce yourself to the class** during the first week by posting a self-introduction in the appropriate discussion forum
- **Take the practice quiz** to ensure that your computer is compatible with Blackboard
- **Interact** online with instructor/s and peers
- **Review** and follow the course calendar
- Log in to the course **at least once** per week
- Respond to discussion boards, blogs, and journal postings within **the timeframe set for each posted module** (unless accommodations are made in writing with the professor prior to a given module's release)
- Respond to **direct emails/messages** from the professor within **2 days of receipt**
- Submit assignments by the corresponding deadline

### **The instructor will:**

- Log in to the course **at least twice** per week
- Respond to discussion boards, blogs, and journal postings within **the timeframe set for each posted module**
- Respond to **direct emails/messages** within **2 days of receipt** (matters requiring immediate response should be handled by phone/text) with email follow-up)
- Grade assignments within **1 business week** of the assignment deadline (unless noted otherwise)

## **COURSE DETAILS**

---

### **COURSE COMMUNICATION**

---

Communication in this course will take place via Primary - Email and secondary – Phone/text.

The Email feature is an external communication tool that allows users to send emails to users enrolled within the course. Emails are sent to the students' FIU email on record. The Email tool is located on the Course Menu, on the left side of the course webpage.

Because of the nature of this course, urgent matters should be conducted via phone/text to the professor directly with follow-up sent via email in all cases.

Visit our [Writing Resources webpage](#) for more information on professional writing and technical communication skills.

### **DISCUSSION FORUMS**

---

Keep in mind that your discussion forum postings will likely be seen by other members of the course. Care should be taken when determining what to post.

#### **Discussion Forum Expectations:**

- Unless instructed by the professor directly messages in discussion forums should be:
  1. Focused on course topics and assignments only
  2. Be additive to a string and not simply filler
  3. Not more than 20 lines or 200 words of text
  4. Submitted in an appropriate timeframe as directed by the course requirements or professor (likely within the calendar week of a given module)
- Interaction in discussion forum(s) will be viewed as part of the student's participation grade for the course. To achieve full marks, students must:
  1. Add commentary to a discussion string at least one time per each posted module (unless otherwise directed by professor)
  2. Pose comment(s)/question(s) that are additive in nature and demonstrating independent thought on a specific topic
- Professor will monitor discussion forum at least twice per module (beginning and end) with final comment(s) transitioning topic to next course module

## **QUIZZES**

---

In order to mitigate any issues with your computer and online assessments, it is very important that you take the "Practice Quiz" from each computer you will be using to take your graded quizzes and exams. It is your responsibility to make sure your computer meets the minimum [hardware requirements](#).

Assessments in this course are not compatible with mobile devices and should not be taken through a mobile phone or tablet. If you need further assistance please contact [FIU Online Support Services](#).

#### **Quiz Expectations:**

- Short content assessments will be conducted for each module – unless otherwise stated, these will be multiple choice questions touching on module topics
- Assessments will be live from the start to the end of a given module unless otherwise noted (likely Tuesday (8:00a ET) through Monday (11:59p ET)
- Modular assessments should take approximately 15-30 minutes to complete but will not be timed
- Provide details for results
  1. Results will be made available after the assessment period expires
  2. All questions/answers will be available for student review
- Questions/Feedback on assessments should be provided within one calendar week of an assessment closing unless otherwise stated

## **ASSIGNMENTS**

---

#### **Assignment Expectations:**

- Specific course modules will have directed assignments either in addition to, or in place of, a modular assessment
- Due dates and completion expectations will be provided with each assignment
- The desire for collaboration/teamwork will require group work on at least one course assignment; groups will be determined at random by the professor and distributed accordingly

- For narrative course assignments, Assignment Drop Box will likely be used as the primary vehicle for submission. Instructions will be made available with the first assignment requiring this function
  - Note: [Turnitin](#) will be used during the submission process of all narrative assignments. Please review the instructions and become familiar with the service
- With any narrative assessment, expectations will also be provided along with a scoring rubric to ensure students are aware of grading criteria
- Questions/Feedback on assignments should be provided within one calendar week of an assessment closing unless otherwise stated

## ADOBE CONNECT

---

Adobe Connect is an online meeting room where you can interact with your professor and fellow students by sharing screens, sharing files, chatting, broadcasting live audio, and taking part in other interactive online activities. We will be utilizing this tool to conduct at least one course assignment. We can also schedule meeting(s) as needed/determined by the class. Because of the nature of the course, these will need to be after 5:00p ET and scheduled at least one week in advance to permit student participation.

### Requirements for using Adobe Connect:

1. Disable any window pop-up blocker.
2. [Adobe Flash Player](#) is required to successfully run your Adobe Connect meeting. You can [test your computer](#) to make sure your computer and network connections are properly configured to provide you with the best possible Adobe Connect meeting experience.
3. Use of a combination [headset and microphone](#) with USB connection is recommended to ensure quality sound and reduce technical difficulties

Reference [Adobe Connect \(Tutorials & Help\)](#) to learn about the tool, how to access your meeting rooms and recordings.

## GRADING

---

Course Requirements	Number of Items	Points for Each	Total Points Available	Weight
Class Participation	4	40	160	16%
Quizzes	4	30	120	12%
Exams	2	200	400	40%
Additional Assignment(s)	6	20	120	12%
Expert Witness Deposition	1	200	200	20%
<b>Total</b>	<b>36</b>	<b>N/A</b>	<b>1000</b>	<b>100%</b>

Letter Grade	Range	Letter Grade	Range	Letter Grade	Range
A	Above 93	B-	81-83	D+	67-70
A-	91-92	C+	77-80	D	64-66
B+	87-90	C	74-76	D-	61-63
B	84-86	C-	71-73	F	< 61



## COURSE CALENDAR

Date	Tasks
<b>MODULE 1</b>	
August 20 – September 16	<p><i>Module Learning Objectives:</i></p> <ul style="list-style-type: none"><li>• Evaluate various types of biological evidence</li><li>• Recognize the steps and significance of chain of custody</li><li>• Define methods for serological screening used currently in forensic casework and those currently in development</li><li>• Describe the steps and types of DNA extraction methods</li><li>• Discuss automation and its impact on sample processing</li><li>• Describe purpose and methods for quantifying DNA</li><li>• Explain the steps of PCR and the purpose of each chemical component used in DNA amplification</li></ul> <p><b>1.1 Course Introduction: Molecular Biology Review, Historical Perspectives of DNA Identification</b></p> <p><i>Tasks/Assignments:</i></p> <ul style="list-style-type: none"><li>• Listen to taped presentation(s)</li><li>• Review chapter(s) 1 – 3,8 of Butler text (pgs 1-78; 147-174)</li><li>• Review supplemental viewing and reading materials as needed</li></ul>
August 20 – September 16	<p><b>1.2 Biological Evidence: Sample Type(s), Chain of Custody, and Serological Screening</b></p> <p><i>Tasks/Assignments:</i></p> <ul style="list-style-type: none"><li>• Listen to taped presentation(s)</li><li>• Review chapter(s) 4 of Butler text (pgs 79-98)</li><li>• Post requested discussion board content – Module 1</li><li>• Review supplemental viewing and reading materials as needed</li><li>• Assignment 1 - Complete OJ Simpson Case Study</li></ul>
August 20 – September 16	<p><b>1.3 Extraction: Out with the Bad and in with the Good</b></p> <p><i>Tasks/Assignments:</i></p> <ul style="list-style-type: none"><li>• Listen to taped presentation(s)</li><li>• Review chapter(s) 5 of Butler text (pgs 99-110)</li><li>• Review supplemental viewing and reading materials as needed</li><li>• Assignment 2 - Assessment of robotic extraction platform</li></ul>

August 20 – September 16	<p style="text-align: center;"><b>1.4 Quantitation: How Much Do I Have? Amplification: How Much Can I Make?</b></p> <p><i>Tasks/Assignments:</i></p> <ul style="list-style-type: none"> <li>• Listen to taped presentation(s)</li> <li>• Review chapter(s) 6-7 of Butler text (pgs 111-146)</li> <li>• Review supplemental viewing and reading materials as needed</li> <li>• Complete Quiz 1</li> </ul>
<b>MODULE 2</b>	
September 17 – October 7	<p><i>Module Learning Objectives:</i></p> <ul style="list-style-type: none"> <li>• Describe the theory and applications of DNA fragment separation</li> <li>• Recognize advancements in detection methods and impact on DNA typing</li> <li>• Evaluate typical forensic DNA profiles (single source vs. mixtures)</li> <li>• Identify the potential conclusions that can result from DNA comparisons</li> <li>• Identify different methods of assigning statistical weight</li> </ul> <p style="text-align: center;"><b>2.1 Separate, Detect, Genotype and Interpret (Oh my!) – Part I</b></p> <p><i>Tasks/Assignments:</i></p> <ul style="list-style-type: none"> <li>• Listen to taped presentation(s)</li> <li>• Review chapter(s) 9-10; 14 of Butler text (pgs 175-228; 315-340)</li> <li>• Review supplemental viewing and reading materials as needed</li> </ul>
<b>2.2 Separate, Detect, Genotype and Interpret (Oh my!) – Part II</b>	
September 17 – October 7	<p><i>Tasks/Assignments:</i></p> <ul style="list-style-type: none"> <li>• Listen to taped presentation(s)</li> <li>• Review chapter(s) 9-10; 14 of Butler text (pgs 175-228; 315-340)</li> <li>• Review supplemental viewing and reading materials as needed</li> <li>• Assignment 3 - Analysis of artifacts and their impact on interpretation</li> </ul>
<b>2.3 Establishing Conclusions and Assigning Significance</b>	
September 17 – October 7	<p><i>Tasks/Assignments:</i></p> <ul style="list-style-type: none"> <li>• Listen to taped presentation(s)</li> <li>• Review chapter(s) 11 of Butler text (pgs 229-258)</li> <li>• Review supplemental viewing and reading materials as needed</li> <li>• Post requested discussion board content – Module 2</li> <li>• Complete Quiz 2</li> </ul>
<b>Mid-Term Examination</b>	
October 8 – October 14	<p><i>Module Learning Objectives:</i></p> <ul style="list-style-type: none"> <li>• Describe major learnings from first half of course</li> </ul> <p><i>Tasks/Assignments:</i></p> <ul style="list-style-type: none"> <li>• Listen to taped presentation(s)</li> <li>• Review all prior assigned chapter(s) of Butler text (above)</li> </ul>

- Complete Mid-Term Exam and Submit Prior to Deadline

## MODULE 3

October 15 – November 4

*Module Learning Objectives:*

- Explain the CODIS databasing system and its impact on criminal investigations
- Define accreditation measures and reasons why these are musts for forensic laboratories
- Recognize the growing importance of forensic analyst certification
- Evaluate usage of mtDNA and Y-STR analysis for forensic casework

**3.1 No Suspects? No Problem!**

*Tasks/Assignments:*

- Listen to taped presentation(s)
- Review chapter(s) 12 of Butler text (pgs 259-290)
- Review supplemental viewing and reading materials as needed
- Assignment 4 - Research/submit case summary - success of databasing

**3.2 Quality? How are we (as)Sure(ance)?**

October 15 – November 4

*Tasks/Assignments:*

- Listen to taped presentation(s)
- Review chapter(s) 13 of Butler text (pgs 291-324)
- Post requested discussion board content – Module 3
- Review supplemental viewing and reading materials as needed

**3.3 Not Autosomal? Not a Problem!**

October 15 – November 4

*Tasks/Assignments:*

- Listen to taped presentation(s)
- Review chapter(s) 16 of Butler text (pgs 363-396)
- Review supplemental viewing and reading materials as needed
- Assignment 5 - Journal Article Review and Submission of Analysis
- Complete Quiz 3

## MODULE 4

**Module Learning Objectives:**

- Differentiate new methods of human identification
- Describe steps in trial preparation
- Identify presentation skills necessary for adequate delivery of scientific content to jury and representatives of the judicial system

November 5 –  
December 2

**4.1 The Future is Now!**

**Tasks/Assignments:**

- Listen to taped presentation(s)
- Review chapter(s) 18 of Butler text (pgs 423-438)
- Review supplemental viewing and reading materials as needed
- Post requested discussion board content – Module 4

**4.2 Witness and Trial Preparation**

November 5 –  
December 2

**Tasks/Assignments:**

- Listen to taped presentation(s)
- Review assigned article(s)
- Review supplemental viewing and reading materials as needed
- Assignment 6 - Submit Innocence Project Case Review

**4.3 Deposition Development**

November 5 –  
December 2

**Tasks/Assignments:**

- Listen to taped presentation(s)
- Practice assigned group deposition roll-play

**4.4 Deposition Submission and Final Exam Review**

November 5 –  
December 2

**Tasks/Assignments:**

- Listen to taped presentation(s)
- Witness Interview Assignment – Submit Final Taped Presentation
- Complete Quiz 4

**Final Examination**

December 3 –  
December 8

**Tasks/Assignments:**

- Listen to all taped presentation(s)
- Review all prior assigned chapter(s) of Butler text (above)
- Post requested discussion board content
- Complete Narrative Final Exam and Submit Prior to Deadline