

# MED YSP 2025 Module 3: Molecular Biology & Genetics

Name: \_\_\_\_\_

Monday, July 21, 2025	
Time	Activity
8:00 - 8:45	Check-in David Naylor lobby of Medical Sciences Building (aka Stone Lobby)
8:15 - 8:45	Rise & Shine Melissa (SEG) & Anka
Troubleshoot WiFi connections while students wait.	
8:45 - 9:00	Meet in lecture room MSB 3154
9:00 - 9:15	Welcome <i>Dr. Alex Palazzo</i> Associate Professor, Department of Biochemistry, UoF Land Acknowledgement <i>Erin Park</i> <i>Artur Jakubowski, Program Coordinator</i>
9:15 - 9:40	Introduction to Molecular Biology and DNA Basics <i>Dr. Alex Palazzo</i>
9:40 - 9:50	Meet Instructors & Transfer to lab rooms <i>Dr. Azmiri Sultana</i>
9:50 - 10:10	In your lab room Meet and Greet (Attendance, Ice breakers)
10:10 - 10:30	Lab Safety (Fire, Medical, General Lab Safety, + lab coats)
10:30 - 11:25	Lab #1: How to pipette like a champ
11:25 - 11:30	Lab cleanup + Checklist
11:30 - 11:40	Transfer to MSB 3154
11:40 - 12:00	Forensics Intro <i>Med YSP Instructors Team</i>

Tuesday, July 22, 2025	
Time	Activity
8:00 - 8:45	Attendance in Lecture room
8:15 - 8:45	Rise & Shine Landon & Stella
Troubleshoot WiFi connections while students wait.	
9:00 - 9:40	Meet in Lecture Room MSB 3154 Lecture: Techniques Part 1, DNA isolation: Take Your DNA Home, PCR and DNA Fingerprinting / STR (Short Tandem Repeats) Introduce Science T-shirt Thursday Wear your best science t-shirt/sweater on Thursday <i>Dr. Alex Palazzo</i>
9:40 - 9:50	Transfer to individual lab rooms
9:50 - 11:15	Lab #6: DNA Fingerprinting by PCR Part A: Setup PCR rxn
11:15 - 11:45	Activity #2: PCR Dash Game
11:45 - 11:50	Lab cleanup + Checklist
11:50 - 12:00	Introduce Game Show <b>Led by each Team</b>

Wednesday, July 23, 2025	
Time	Activity
8:00 - 8:45	Attendance in MSB, David Naylor lobby of Medical Sciences Building (aka Stone Lobby)
8:15 - 9:00	Rise & Shine Erin & Ziad
Troubleshoot WiFi connections while students wait.	
8:55 - 9:00	Proceed to MSB lab rooms
9:00 - 9:30	Lab #6: DNA Fingerprinting by PCR Part D: Load and run gels
9:30 - 9:50	Lab #6: Discuss STR (Short Tandem Repeats), during incubation
9:50	Hard stop!
9:50 - 10:00	Transfer to Lecture Room
Meet in Lecture Room MSB 3154 Forensics in the Real World <i>Shelby Scott, Shelby Scott, M.Sc., Ph.D.</i> Forensic Anthropologist (Consultant to the Ontario Forensic Pathology Service) Course Instructor, Forensic Science Program University of Toronto Mississauga	
10:00 - 11:10	Lab #6: DNA Fingerprinting by PCR Part E: Image Gels
11:10 - 11:15	Transfer to lab rooms
11:15 - 12:00	Lab #9: Genetic Transformation, Part B - Analyse Transformation
11:55 - 12:00	Lab cleanup + Checklist

Thursday, July 24, 2025	
Time	Activity
8:00 - 8:45	Attendance in MSB, David Naylor lobby of Medical Sciences Building (aka Stone Lobby)
8:15 - 9:00	Rise & Shine Alex & Hema
Troubleshoot WiFi connections while students wait.	
8:55 - 9:00	Proceed to MSB lab rooms
Science T-shirt Thursday Wear your best science t-shirt/sweater on Thursday	
9:00 - 11:40	Lab #9: Genetic Transformation, Part C2 - Extract protein Lab #9: Genetic Transformation, Part C3 - Run Gel
11:40 - 11:45	Lab cleanup + Checklist
11:45 - 12:00	Group photo Melissa (Student Experience Guru)

Friday, July 25, 2025	
Time	Activity
8:00 - 8:45	Attendance in Lecture room
8:15 - 9:00	Rise & Shine Alicia & Anu
Troubleshoot WiFi connections while students wait.	
Meet in Lecture Room MSB 3153 Gene Editing: the Future of Medicine? CRISPR talk <i>Dr. Landon Getz, Dept. of Biochemistry Postdoctoral Researcher, CIHR Fellow and Inaugural Recipient of the GSK/EPIC Convergence Postdoctoral Fellowship in Antimicrobial Resistance   Mentor to the Youth Council of the Chief Science Advisor of Canada</i>	
9:00 - 10:00	Transfer to lab rooms Lab #9: Genetic Transformation, Part C4 - View and Analyse Gel (after 24hr destaining)
10:20 - 11:00	Solve the crime scene (put all evidence together and reveal story line) Review Experiments and Study for Game Show
11:00 - 11:15	Rotation Determination and Move to respective Rooms

Attend one of the following sessions as determined by you and your instructor	
11:15 - 12:00	University Admissions, MSB 3153 <i>Floyd Naranha</i> or
11:15 - 12:00	Panel Discussions, MSB 2172 Led by Instructors or
11:15 - 12:00	Anatomy Museum, MSB 2278 NO PHONE RULE Led by Instructors

12 to 1 PM	
Time	Activity
12:55 - 1:00	Transfer to lecture room MSB 3154
1 - 1:30	FIS Lecture <i>Wade Knap, Forensic Identification Instructor, UoF</i>
1:30 - 1:45	Instructors announce in lecture who is going where for afternoon rotations. Buffer + Proceed to Activities
Team Blue & Green: Stay in lecture room Teams Orange, Purple, Red, & Yellow: Proceed to lab rooms	
1:45 - 4:10	Lab #3: Explore Crime Scene <i>DC Simon Hubbar, FIS, Toronto Police on site</i> Activity #1: Fingerprint handout Lab #4: Fingerprint Workshop with Ninhydrin Lab #2: Blood patterns Lab #5: Forensic Hands-On activities
4:10 - 4:15	Proceed back to lab rooms
4:15 - 4:25	Lab #6: DNA Fingerprinting by PCR: Crime Scene Discussion and selection of evidence sample for analysis
4:25 - 4:45	Look at casting samples from earlier
4:45 - 5:00	Wrap-Up

12 to 1 PM	
Time	Activity
12:55 - 1:00	Transfer to lecture room MSB 3154
1 - 1:30	Meet in Lecture Room MSB 3154 Lecture: Techniques Part 2, Genetic Transformation <i>Sean Sung Jin Ihn, Dept. of Biochemistry</i>
1:30 - 1:35	Proceed back to lab rooms
1:35 - 2:45	Lab #7: Take Your DNA Home
2:45 - 3:35	Lab #6: DNA Fingerprinting by PCR Part B: Prepare PCR samples Lab #6: DNA Fingerprinting by PCR Part C: Pour Gels
3:35 - 4:35	Lab #9: Genetic Transformation, Part A Transform Bacteria
4:50 - 5 PM	Lab cleanup + Checklist

**Med YSP Photos**  
<https://medysp.pixieset.com>  
Password: Medysp2025  
Deadline to download photos  
**Fri. Aug. 15, 2025**

12 to 1 PM	
Time	Activity
12:55 - 1:00	Transfer to lecture room MSB 3154
1 - 1:30	Meet in Lecture Room MSB 3154 Lecture: Techniques Part 3, ELISA (Enzyme Linked Immunosorbent Assay) <i>Eva (Yifan) WANG</i> Dept. of Biochemistry
1:30 - 1:35	Proceed back to lab rooms
1:35 - 4:50	Lab #8: Drug analysis by ELISA Lab #11: Ink Analysis by Paper Chromatography Lab #9: Genetic Transformation, Part C1 - Setup O/N cultures
4:30 - 4:50	Lab #9: Genetic Transformation, Part D (done by Instructors Landon and Ivy)
4:50 - 5 PM	Lab cleanup + Checklist

**Friday Game Show Prizes**  
Prizes awarded to top 3 scores.

Crew neck      Backpack      Hoodie

12 - 1 PM	
Time	Activity
12:55 - 1:00	Transfer to lecture room MSB 3154
1 - 2:30	Meet in Lecture Room MSB 3154 How do we know stuff? <i>Dr. Alexander Palazzo</i> <i>Alice Chan &amp; Amber Spatare + ALL Instructors to help</i>
2:30 - 2:40	Proceed back to lab rooms
2:40 - 4:30	Lab #9: Genetic Transformation, Part C4 - View and Analyse Gel
20 min	Recap Genetic Transformation Experiment
30 min	Lab #10: Genetic Transformation Computer Exercise
4:30 - 4:35	Move to Lecture room MSB 3154
4:40 - 5:00	The Great Game Show Trial Run Melissa Beltran (Student Experience Guru)

12 - 1 PM	
Time	Activity
<a href="#">T4_D_06_Friday Farewell 2025.docx</a>	
1:00 - 1:10	Meet in your lab room
1:10 - 1:40	Surveys (Lab rooms) <a href="https://bit.ly/YSPP25-csi">https://bit.ly/YSPP25-csi</a>
1:40 - 1:50	Wrap up (pick up belongings and certificates)
1:50 - 1:55	University Admissions, MSB 3153
1:55 - 3:20	Career Perspectives Panel Pamela Alamillo <i>Deep Genomics</i> Switch over Chloe Mitchell
2:25 - 2:50	<i>Gyros Protein Technologies</i>
2:50 - 2:55	Switch over
2:55 - 3:20	<i>Nevraj Kejju</i> <i>Edesa Biotech, Inc.</i>
3:20 - 3:30	Buffer and Break
3:30 - 4:30	Land Acknowledgment <i>Mads Loewith</i> The Great Game Show Melissa Beltran (Student Experience Guru)
4:30 - 4:35	CSI Team Crime Scene Overview <i>André, Anka, Anu, and Stella</i>
4:35 - 4:40	Closing Remarks <i>Dr. Alex Palazzo &amp; Artur Jakubowski</i>
4:40 - 5:15	Reception & Refreshments David Naylor lobby of Medical Sciences Building (aka Stone Lobby)

**Reminders for Students**  
Wear closed toe shoes and long pants because you are performing wet labs.  
For troubleshooting WIFI, visit [bit.ly/ysp-wifi](http://bit.ly/ysp-wifi)  
**VERIFY anatomy form is signed.**

Start with Genetic Computer Exercise		Start with viewing Gels	
Team Orange (2178)	James' interlab	Team Purple (2279)	Team Red (2281)
Team Yellow (2180)			
Team Green (2182)	Muhammad's interlab	Team Blue (2283)	Storage + ModP rotations
Storage + ModP rotations			