

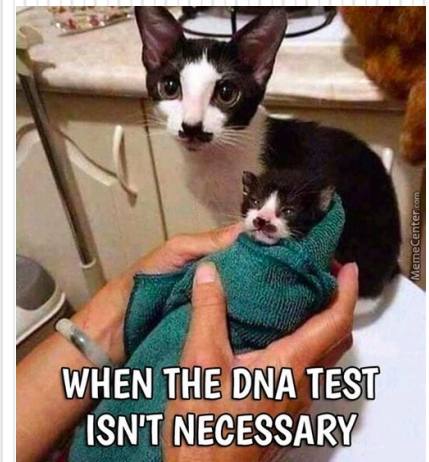
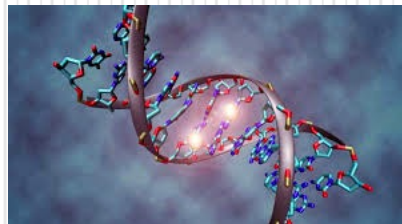
Introduction to SLE254 Genetics and Genomics

Lecture 1

SLE254 Genetics and Genomics

Trimester 2

Dr Marina Telonis-Scott



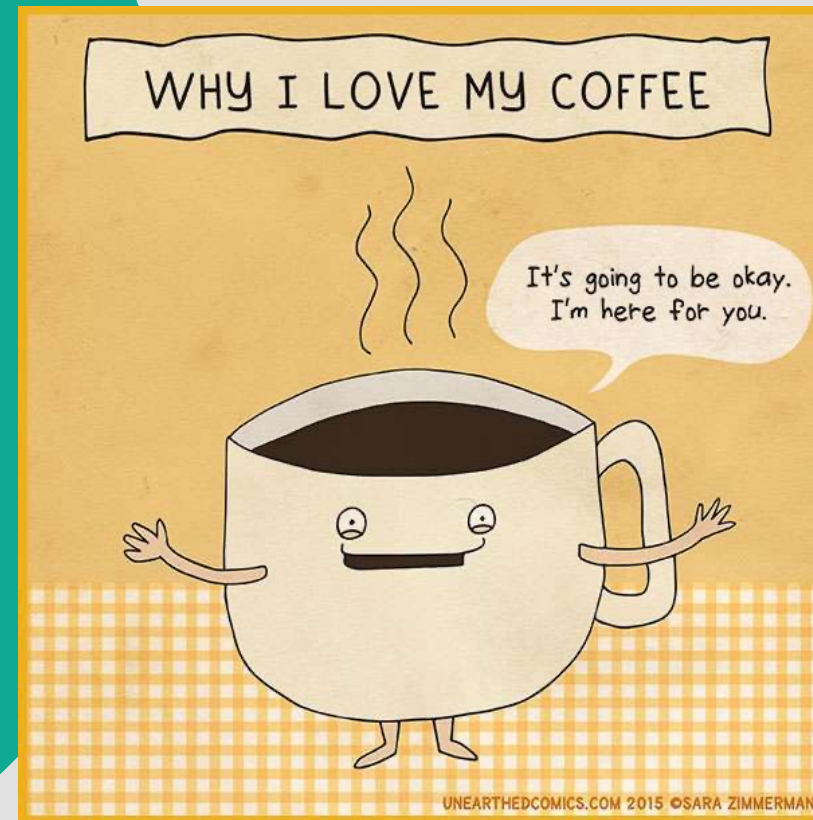
Dr. Marina Telonis-Scott – Unit Chair and Burwood coordinator/ Lecturer

- Burwood campus
- Telephone: 924 46455
- Email: m.telonisscott@deakin.edu.au
- Hours:
 - Monday - Friday
 - Best to make an appointment to speak with me
 - Email and via the unit discussion board (Monday – Friday until 6 pm)
 - Delays on prac weeks!



Coffee with Marina weekly?

- *Coffee Conversations beginning in week 2
- *4-5 students per week
- *Free hot/cold drink at Corner Café Burwood
- *Your space to speak and I'll listen!
- *A chance to yarn with each other and learn from each other.



Three Reasons to attend PASS

1. Improve grades

Research shows that students who attend PASS generally achieve a higher final grade than those who don't attend

2. Maximise Study Time

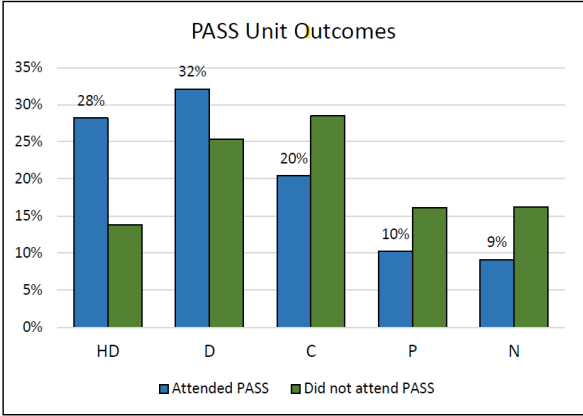
Set times to study each week with peers to help consolidate understanding and reinforce concepts.

3. Develop effective study techniques

Considering other study methods and techniques will enhance your approach and save time.

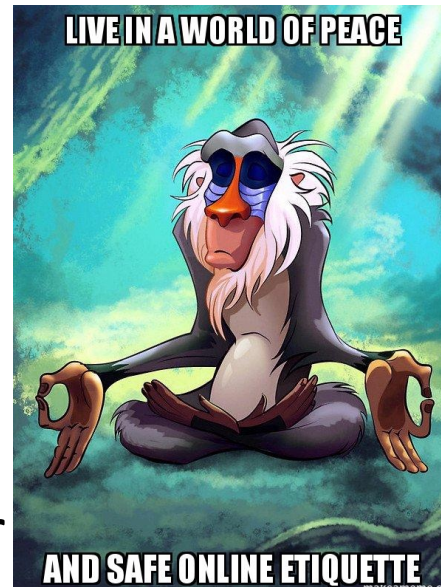
PASS unit grades for domestic students, Trimester 2 2023 - Live sessions

	Unit grade	Attended PASS	Did not attend PASS
High Distinction	HD	28.2%	13.8%
Distinction	D	32.1%	25.3%
Credit	C	20.4%	28.5%
Pass	P	10.2%	16.1%
Fail	N	9.1%	16.2%



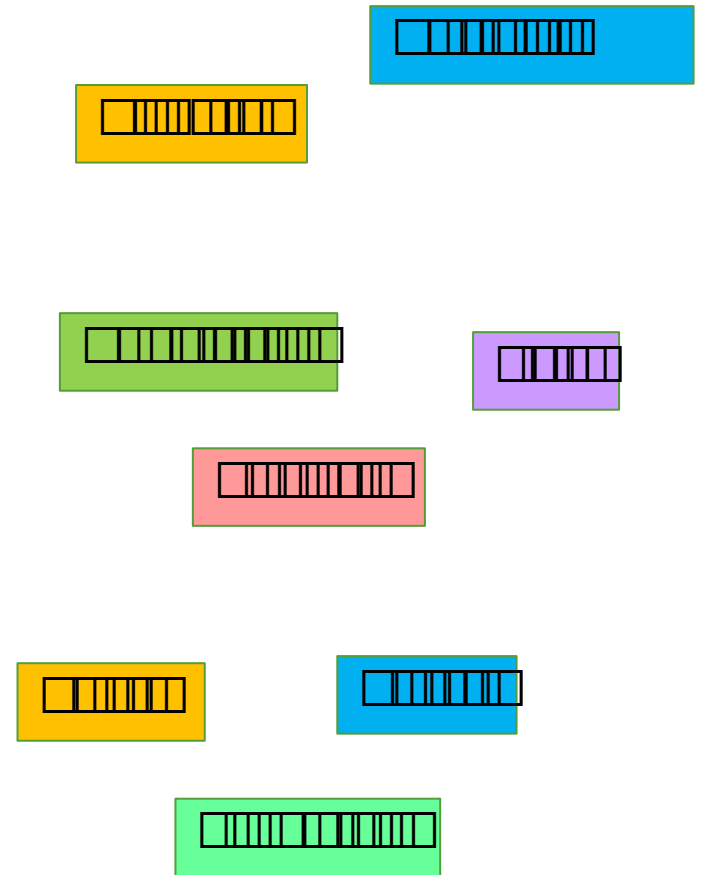
Online class etiquette

- We are a very big unit!
- We have a lot of very exciting material to cover
- Please keep the **chat** strictly to SLE254 content
- If you need to speak to me regarding any other matters contact me out of class.
- If you form 254 study/social media groups put the details on the student discussion board 😊



A word on correspondence

- Be sure to use your Deakin email address when at Deakin University.
 - Lecturers email students important information but they will only use the @deakin.edu.au address
 - Get your Deakin account forwarded to your hotmail/gmail/etc.
- Be polite and courteous – you are in a professional organisation and we're turning you into professionals.
 - Start your correspondence with a greeting
 - Don't forget your manners
 - End with your name



Email vs discussion board

Email

Personal stuff that only affects you eg:

"I broke my arm on the weekend and I not sure I can do everything I need to do in prac. What Should I do?"

"I had a severe case of food poisoning and was in hospital all week so I couldn't go to my mid trimester test. What should I do?"

NOTE: Put SLE254 into your email subject and include your student number in your email!

Discussion

Any general questions about assignments, pracs or content:

"I don't get how to work out the gametes for a Punnett square for a dihybrid cross. Can you go over it again?"

"What will the format of the exam be?"

"What is the red smudge that appears in lane 2 of the gel electrophoresis results?"

"When will the results of the test be released?"

NOTE: Don't put personal information such as your student number on the discussion board!

How to SLE254!

The SLE254 Unit Site is your best buddy

The screenshot displays the SLE254 Genetics and Genomics unit site. The browser address bar shows the URL d2l.deakin.edu.au/d2l/home/1193659. The page features a top navigation bar with various icons and a search bar. The main content area is divided into several sections:

- Welcome to SLE254 Genetics and Genomics!**: A welcome message posted 7 days ago, stating that the unit is a blended activity unit where classes will be online via Zoom Webinar. A link to "See all announcements" is provided.
- Week 1 - Classical genetics**: A section titled "Week 1 - Classical genetics" with a progress indicator showing "50% completed - 5 of 10 resources viewed". It includes a "Prev" button and a "Next" button.
- Week 1 Welcome and classical genetics**: A section with two images (a cartoon character and a cell diagram) and a text block explaining the week's focus on cell division, mitosis, and meiosis, leading into Mendelian genetics and Gregor Mendel's work.
- What do I need to do in week 1?**: A section with a "Show less" button.
- Class notes Burwood and Geelong**: A list of resources with "Seen" status and checkmarks:
 - Class 2 learning objectives
 - Class 3 learning objectives
 - SLE254 Class 2 - Mitosis and Meiosis
 - SLE254 Class 2 - Mitosis and Meiosis_6pp
 - SLE254 Class 3 - Gene inheritance and transmission
 - SLE254 Class 3 - Gene inheritance and transmission_6pp
- Learning resources week 1**: A list of resources with "Seen" status and checkmarks:
 - Mitosis & meiosis
 - Gene inheritance & transmission
 - How_to_Binomial_Theorem

The right sidebar contains several widgets:

- SEBE Staff Hub**: A section with links to "Module Description Builder" and "Get Started (for Students)".
- 1 Unread Discussion Posts**: A notification for unread discussion posts.
- Unit Staff**: A section featuring Dr Marina Telonis-Scott, Unit Chair, with contact information (Melbourne Burwood Campus, email: m.telonis-scott@deakin.edu.au, phone: +61 3 924 46455) and a link to "View your unit team".
- Calendar**: A section showing the current date as Monday, July 11, 2022, and a list of upcoming events, including "JUL 29 8:00 PM Cat Prac Worksheet - Due".

A "See all Resources" link is located at the bottom of the main content area.

Prescribed textbook

- Klug, Cummings, Spencer, Palladino. Concepts of Genetics, 12th Ed (2019)

- The electronic format is available through the library
- Link to the book under the Reading list. The access is limited to 10 concurrent users
- The library also has a number of print copies of different editions



Concepts of Genetics

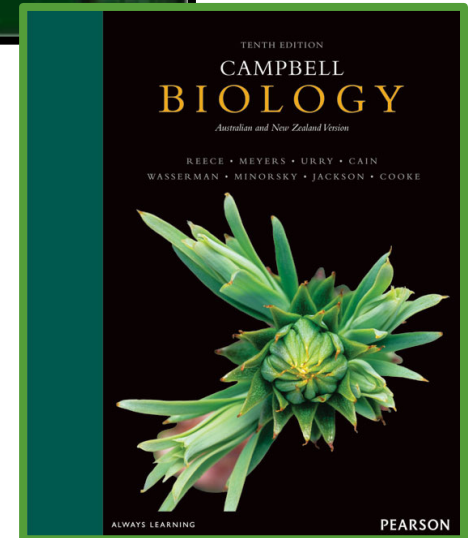
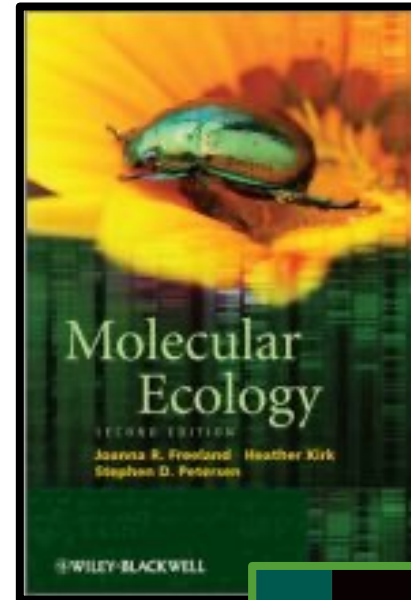
TWELFTH EDITION

Klug • Cummings • Spencer • Palladino • Killian



Other helpful books

- Freeland, Kirk, Peterson.
Molecular Ecology, 2nd Ed (2011)
- Reece, Meyers, Urry, Cain,
Wasserman, Minorsky, Jackson,
Cooke. Campbell Biology 9th Ed
(2011)



When and where are the Lectures?

SLE254 - Genetics And Genomics

Unit Information

Online Classrooms

Practicals

Class 1 +2

Wednesday 9am-10:50am

Class 3

Wednesday 5pm- 5:50pm

SLE254 - Genetics And Genomics



Marina Telonis-Scott



Home Content Discussions Assessment Tools Setup 2024 T2

Table of Contents > Online Classroom and Recordings > Zoom > Zoom

Zoom



zoom

Home

Appointments

Your current Time Zone and Language are (GMT+10:00) Canberra, Melbourne, Sydney, English

All My Zoom Meetings/Recordings

Schedule a New Meeting



Upcoming Meetings

Previous Meetings

Personal Meeting Room

Cloud Recordings

Get Training

☐ Show my course meetings only

Start Time	Topic	Meeting ID	
Tomorrow (Recurring) 9:00 AM	SLE254 - Genetics And Genomics	813 3748 1982	<button>Start</button> <button>Delete</button>
Tomorrow (Recurring) 5:00 PM	SLE254 - Genetics And Genomics	824 4196 9009	<button>Start</button> <button>Delete</button>
Wed, Jul 17 (Recurring) 9:00 AM	SLE254 - Genetics And Genomics	813 3748 1982	<button>Delete</button>

SLE254 Schedule: KEEP THIS CLOSE TO YOU!!! (UNIT INFORMATION)

Week	Class No.	Date	Topic	Text Book Ed 11	Text Book Ed 12	Practical
Week 1	1	Wed 10 th Jul	Welcome and unit introduction			
	2	Wed 10 th Jul	Mitosis and Meiosis	p50-73 Ch2	50-71 Ch2	
	3	Wed 10 ^h Jul	Gene inheritance and transmission	p74-103 Ch3	73-96 Ch3	
Week 2	4	Wed 17 th Jul	Pedigree analysis	p93-103 Ch3	88-90 Ch3	Prac 1 starts: Epistatic interactions between genes.
	5	Wed 17 th Jul	Extensions of Mendelian Genetics	p104-137 Ch4	98-128 Ch4	
	6	Wed 17 th Jul	Sex determination	p198-221 Ch7	131-150 Ch5	
Week 3	7	Wed 24 th Jul	Karyotypes	p38, 54 & 405	40f, 54,54f &618f	Prac 1 quiz due Friday 26 th July 8pm ‘Cat Prac’
	8	Wed 24 ^h Jul	Chromosomal abnormalities	p222-247 Ch8	151-174 Ch6	
	9	Wed 24 th Jul	DNA structure & Chromosomal organisation	p265-294 Ch10 p322-41 Ch12	251-274 Ch10 302-319 Ch12	
Week 4	10	Wed 31 st Jul	DNA replication	p295-321 Ch11	276-300 Ch11	Prac 2 starts: Chicken DNA (part I)
	11	Wed 31 st Jul	Catch up and Q&A			
	12	Wed 31 st Jul	Revision			
Week 5	13	Wed 7 th Aug	Class test 1 covering lectures 2 to 11 (10% of final mark)			
	14	Wed 7 th Aug	Transcription and translation	p342-400 Ch13,14	321-377 Ch13	
	15	Wed 7 th Aug	DNA repair and mutations	p401-429 Ch15	378-409 Ch15	
		Intra-trimester Break (August 12th to the 18th)				

Lecture notes

- Resources: Genetics SLE254 unit site
- Every effort is made to ensure lecture notes will be available prior to a lecture
- Lectures will live streamed using Zoom and recorded in the Zoom module.

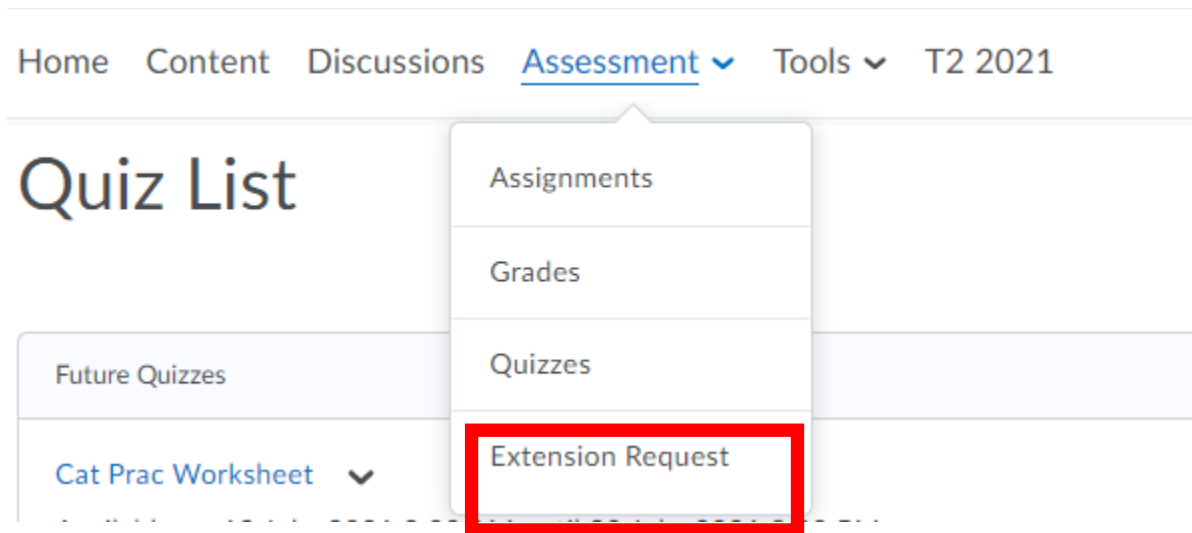


Genetics assessment

- **Class test 1**
 - Wednesday 7th Aug 10%
 - Covers Weeks 1 – 5 (Lectures 2 – 11)
- **Class test 2** 10%
 - Wednesday 11th Sep
 - Covers Weeks 6 – 8 (Lectures 14 – 23)
- **Practical Reports** – worksheet and poster (Prac1, Prac 2 -4) 40%
- Due end of week 3 and 10 respectively
- **EoUA** 40%
 - To be announced

There may be questions on the In-class test and exam
that deal with topics covered in the practicals

Extensions- please no emails use the extension request form



Your practical team

- **Dr Andrew Oxley, Warun Ponds coordinator, lecturer and practical coordinator**

andrew.oxley@deakin.edu.au

- **tel:+61 3 522 73670**



- **Practical Technicians:** Maria Amodio, Brittney Jenkins and Megan Ellis

Practicals are compulsory!!

Practicals

- Practicals are NOT held every week – [check schedule!](#)
- Practicals start 'Week 2'
- Not allocated a prac class in STAR?
- Manuals for practical classes
 - A PDF of the manual will be posted on SLE254 unit site
please print your own

Practicals

- **Bring appropriate lab wear**
- **Bring appropriate practical sheets to each class**
- Practicals are worth 40% of overall mark
 - Practical 1 (8%) question and answer report
 - Poster format for Practicals 2-4 (32%)



Prac 1

- **Submission of reports: Assignment 1 'Cat Prac'**
- Prac Q & A report worksheet **is due by Friday 26th July 8pm**
- Make sure to take notes and complete all questions during Prac 1
- Once you have all of your answers ready, log into the unit site and complete the Cat prac worksheet under the Assessments/Quizzes folder
- Each student will be allocated random questions, thus make sure that you have completed all stations and have all your notes/answers ready from the practical session
- You will have **2 hrs to complete the worksheet**, after 120 minutes you will be prevented from making further changes – **ONCE YOU START YOU MUST FINISH** (you cannot log out of the test, then log back in, the timer is continuous)
- This is worth 8 % of your final mark

Practicals

- **Assignment 2:** The poster report is due on **20th September at 8 pm** via the Assignment folder facility the unit site.
- Standard late penalty applies. No other form of submission of the scientific report will be accepted (e.g. emailed or hard copy submissions).
- **Do not submit** your report to your lecturer, demonstrator or to the technicians.

Need help?

- Struggling with SLE254?
- Having trouble juggling all your units?
- Questions?
- **Please contact me early in the trimester.**





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[Home](#) > [Students](#) > [Studying](#) > [Study support](#) > Academic skills

Academic skills

Use these academic skills guides to help you achieve your best this trimester – and don't forget too that Study Support is always on hand to help.

New to Deakin



Unistart:

- [My first trimester checklist](#)
- [Deakin's digital tools](#)
- [Study strategies](#)
- [Academic integrity](#)

Preparing and planning



- [Trimester and weekly planners](#)
- [Study workload planner](#)
- [Organising your studies](#)
- [Learning online](#)
- [Assignment planner](#)

Writing



- [Academic style](#)
- [English for Uni](#)
- [Integrating sources](#)
- [Referencing](#)
- [Drafting and proofreading](#)
- [Responding to feedback](#)

Exams



Study skills



Assignment types



Studying

[Assessment and results](#)[Study support](#)[Academic skills](#)[HDR](#)[Referencing](#)[English for Uni](#)[Masters by Coursework](#)[Appointments](#)[Students Helping Students](#)

So – I'm overwhelmed: what should I do?

- **Using these strategies will help! Talk to Marina or Andrew!**
- **Learn good time management** – plan ahead and organize your time

<https://www.deakin.edu.au/students/studying/study-support/academic-skills>



<http://finishyourthesis.com>

- If you **don't understand** an assessment task – **talk to your unit chair or tutor**
We can't help if *we don't know that there's a problem!*
- **Learning English isn't always easy**, so if you have language difficulties – contact study-support language and communication

<https://www.deakin.edu.au/students/studying/study-support/english-for-uni>

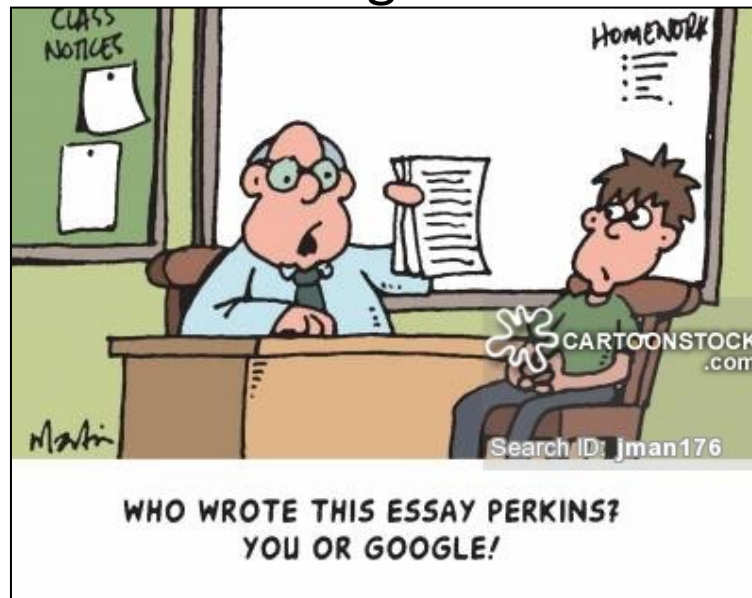
Feeling under pressure and tempted to take short cuts?

- Think again!
- Using another student's work with or without their consent and submitting it as your own is dishonest = **plagiarism/fraud**
- **Using gAI and not citing your program, prompt or quality control**
- Working with others to produce work intended to be an *individual* assessment task = **collusion**



<https://www.cartoonstock.com/directory/p/plagiarism.asp>

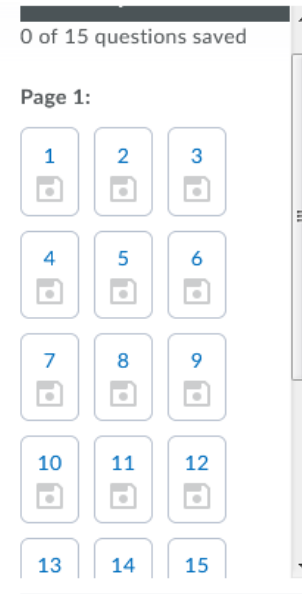
- Paying others to complete an assessment task e.g. lab report and then knowingly submitting it as your own work = **contract cheating**
- All universities take plagiarism, collusion and contract cheating extremely seriously = **academic misconduct**
- **Penalties can be severe** e.g. exclusion from the university



STP050 Academic Integrity

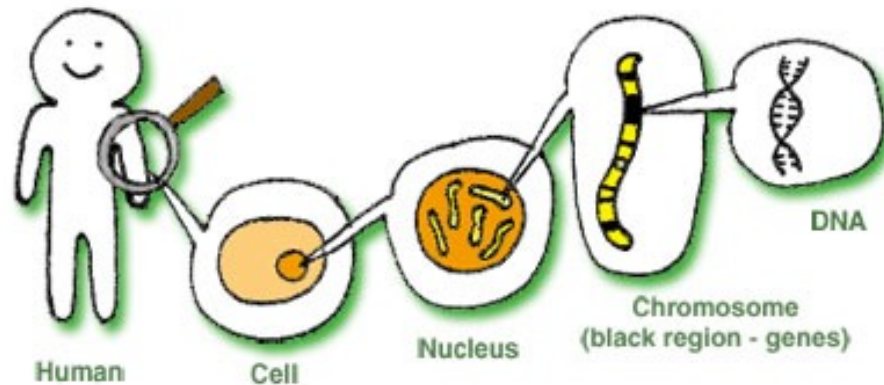
- A **compulsory**, zero credit point unit
- **6 modules** to build your knowledge and practise making judgements about integrity
- A quiz becomes available when you've answered *all questions in these modules*
- Only 15 questions
- Unlimited attempts to score **85%** for an ungraded pass(UP) and a **Certificate of Completion**
- It will take you *less than 2 hours*
- Nothing to submit
- Log in now and complete the unit!

YOUR INTEGRITY AT DEAKIN AND BEYOND
START > ● ● ● ● ● > QUIZ



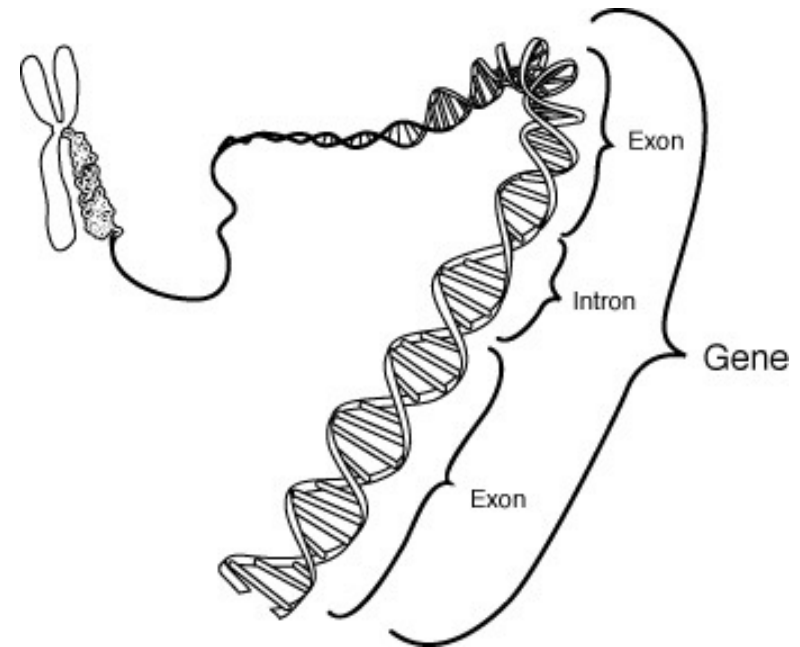
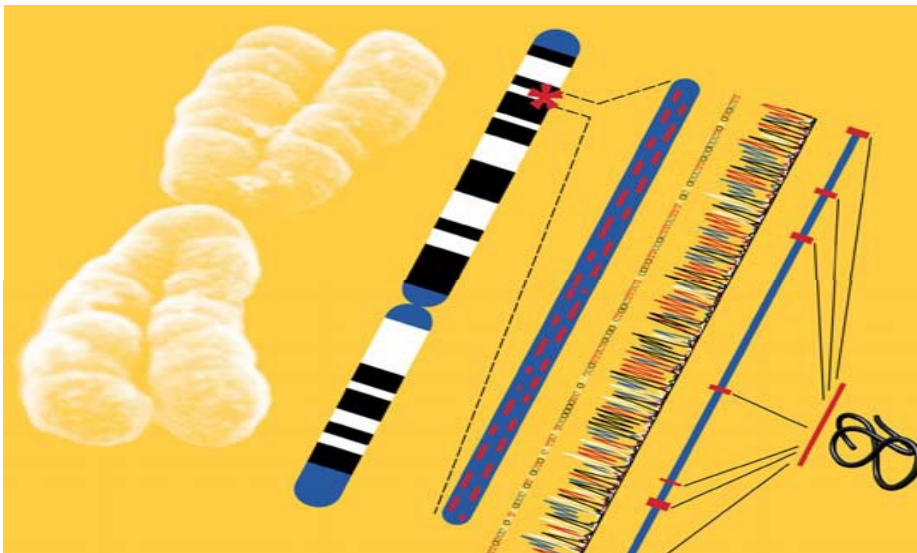
What is genetics?

- The study of **heredity**: how traits (including diseases) are passed from generation to generation
- The study of **genes** and their effect on **phenotype**



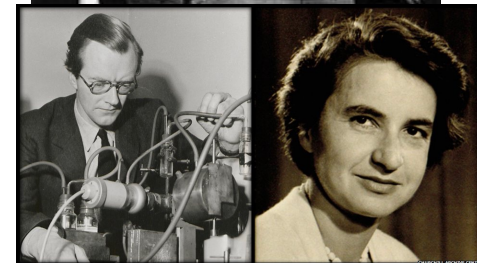
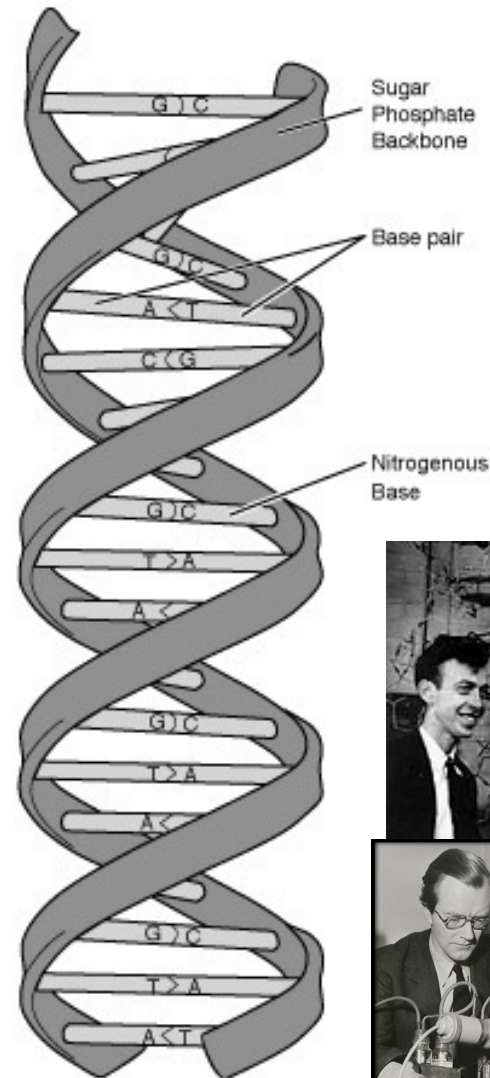
What is a Gene?

- A gene is “The fundamental unit of heredity”
 - A section of DNA that encodes a polypeptide (proteins) or RNA molecules
- Phenotypes are produced by the action of proteins
 - E.g. hair colour, height, ability to make certain proteins



DNA : deoxyribonucleic acid

- DNA transmits genetic information across generations
- DNA contains genes that controls the phenotype by encoding proteins
- DNA is able to change (mutate) creating variation between species and individuals
 - (Evolution)



Genes

Genes can be

- Copied
 - Copied from parent to offspring
- Mutated
 - Confer an advantage for survival
 - Disease
- Expressed
 - Switched on to make polypeptides
- Transposed
 - Moved from one place to another

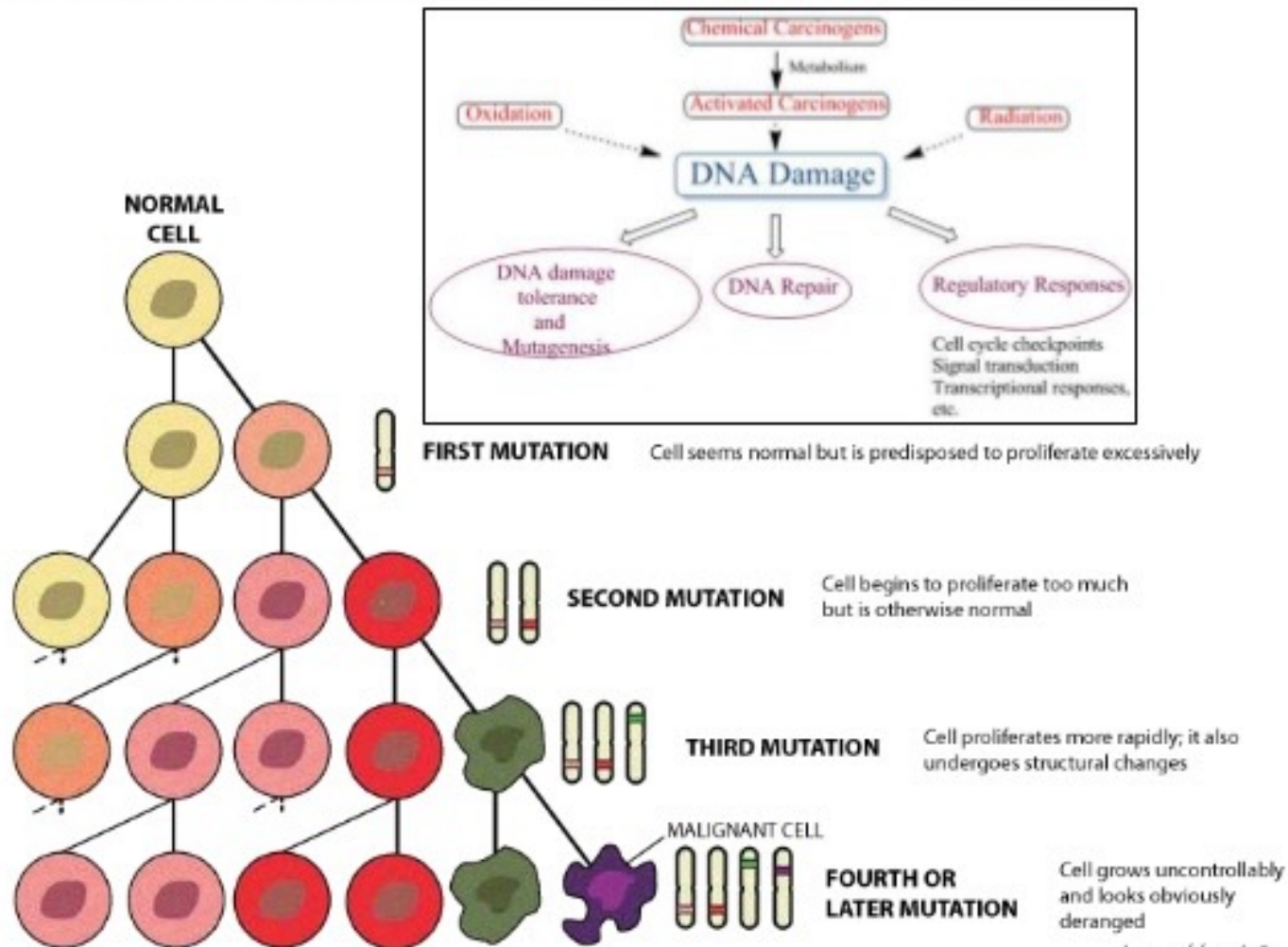
Different approaches to genetics

- Transmission genetics
- Molecular genetics
- Behavioural genetics
- Developmental genetics
- Ecological genetics
- Evolutionary genetics
- Phylogenetics
- Medical genetics
- Microbial genetics
- Population genetics
- Quantitative genetics
- Mitochondrial genetics
- Genetic Engineering
- Conservation genetics

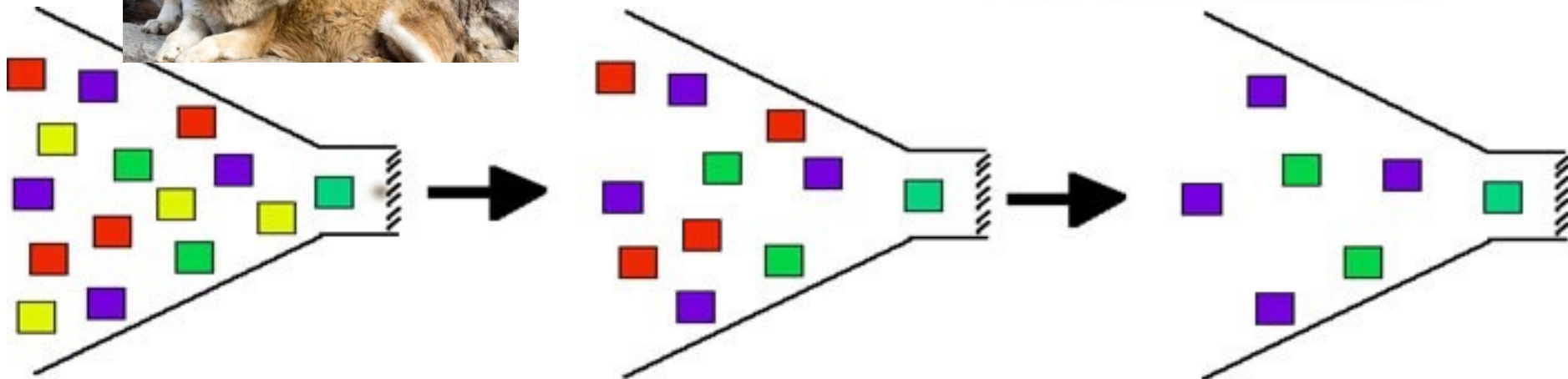
A few examples



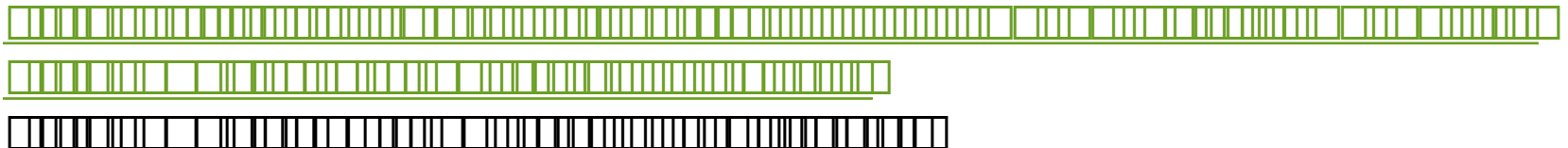
Cancer is a genetic disease...



A few examples • Quantitative genetics



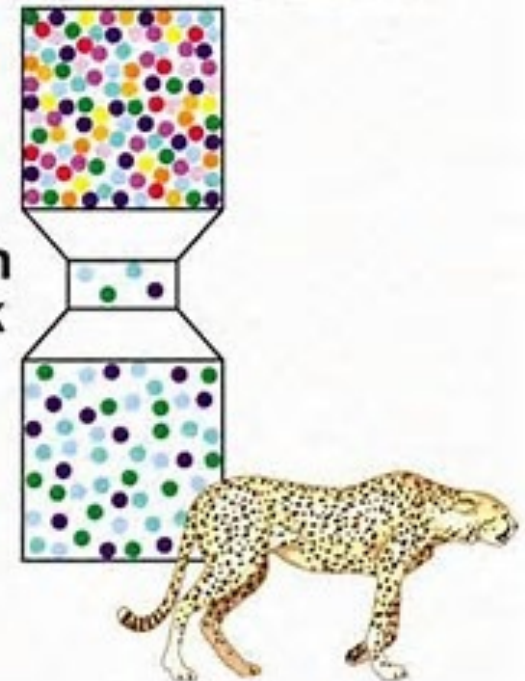
Wild species → Early domesticates → Modern varieties



A few examples

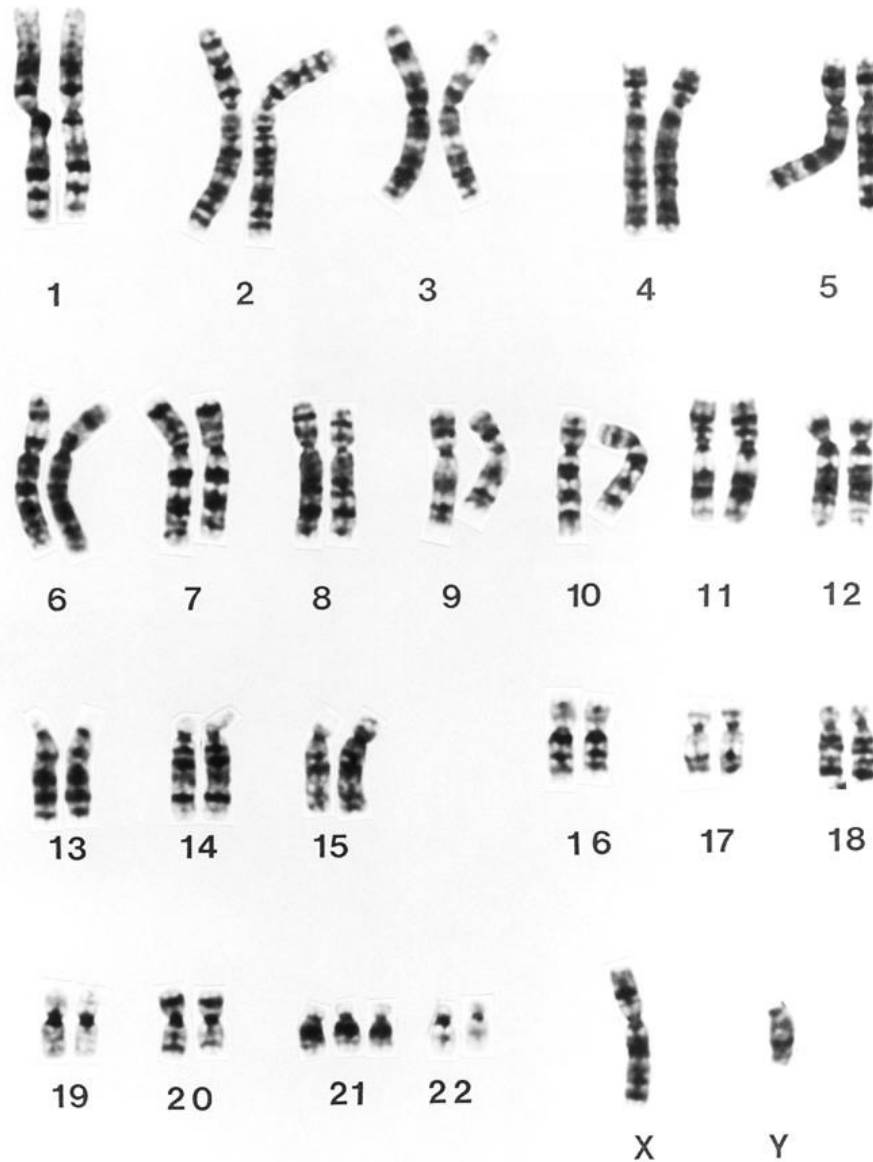


Population
bottleneck



Quiz:

What do you see on this slide?



Summary

- Just an introduction today
- Contact details
- Assessments
- Practicals
- Deakin resources
- Importance of genetics

