

BASIRA
CANCER METABOLISM
RESEARCH & TRAINING



TRAINING CURRICULUM · SECOND COHORT

WEEKLY PLAN

The Programme

Seventeen sessions, six chapters, three quizzes, six assignments

Every session is Thursday or Saturday, 5–7 pm. Each row tells you what we cover, what to do before you arrive, and what is due.

Founder & Programme Lead	Aroob Gomosani
Prepared & delivered by	Haneen Marghalani
Sessions	Thursdays & Saturdays, 5–7 pm
Dates	3 September – 31 October 2026

Gomosani, A., & Marghalani, H. (2026). Basira Curriculum. Zenodo.
<https://doi.org/10.5281/zenodo.21791751>

HOW TO READ THIS

Before you start

Every session has a resource attached — one video or one reading, not a list. Do it before you arrive. They are short, they are free, and the session assumes you have.

Assignments are chained. Assignment 3 is the one where your own research question is born, and every assignment after it sharpens that same question rather than starting a new one. Do not treat them as six separate pieces of homework.

Quizzes are online and open after every second chapter. They are short, they are not timed cruelly, and they exist so you find out what you have not understood while there is still time to fix it.

▲ CAUTION — One date to note now

There is no session on Thursday 24 September — it falls on the National Day holiday. We resume Saturday 26 September.

THE SHAPE OF THE PROGRAMME

1	Thinking	2 sessions	3 – 5 Sep
2	Practice	2 sessions	10 – 12 Sep
—	QUIZ ONE · online	chapters 1–2	opens 12 Sep
3	The Science	5 sessions	17 Sep – 3 Oct
4	Data & Tools	2 sessions	8 – 10 Oct
—	QUIZ TWO · online	chapters 3–4	opens 10 Oct
5	The Toolkit	4 sessions	15 – 24 Oct
6	Build Your Own	2 sessions	29 – 31 Oct
—	QUIZ THREE · online	chapters 5–6	opens 31 Oct

SESSION BY SESSION

All sessions 5–7 pm

SESSION 1 **THU 3 SEP** · CHAPTER 1 · 1.0 – 1.5

What research is · the claim ladder · the method as practised · strong inference · the two errors

BEFORE THIS SESSION [Crash Course Scientific Thinking, full series](#)

SESSION 2 **SAT 5 SEP** · CHAPTER 1 · 1.6 – 1.11

Reading a result · the four traps · calibrated language · abduction · what makes a hypothesis good

BEFORE THIS SESSION **Feynman, Cargo Cult Science**

- **Assignment 1 set**

SESSION 3 **THU 10 SEP** · CHAPTER 2 · 2.0 – 2.6

Why integrity is the foundation · the three bright lines · the grey zone · circularity · structure over willpower

BEFORE THIS SESSION [Retraction Watch — read a week of it](#)

- **Assignment 1 due**

SESSION 4 **SAT 12 SEP** · CHAPTER 2 · 2.7 – 2.12

How a group works · critique given and received · shared code · audience · misleading figures

BEFORE THIS SESSION [Crash Course Scientific Thinking #4 — Peer Review](#)

- **Assignment 2 set · QUIZ 1 opens**

SESSION 5 **THU 17 SEP** · CHAPTER 3 · 3.0 – 3.4

The cell · DNA to RNA to protein · how instructions get damaged · accelerators and brakes

BEFORE THIS SESSION [Crash Course Biology — DNA, transcription, translation](#)

- **Assignment 2 due · Quiz 1 closes**

SESSION 6 **SAT 19 SEP** · CHAPTER 3 · 3.5 – 3.7

Cancer as evolution · cancer as many diseases · the hallmarks

BEFORE THIS SESSION [NCI — What Is Cancer?](#)

THU 24 SEP

NO SESSION — National Day holiday

SESSION 7 SAT 26 SEP · CHAPTER 3 · 3.8 – 3.9

Reading a tissue section · normal versus tumour · a tumour is a tissue, not a bag of cancer cells

BEFORE THIS SESSION [Human Protein Atlas — browse the Dictionary](#)

SESSION 8 THU 1 OCT · CHAPTER 3 · 3.10 – 3.14

Metabolism · the core pathways · the mitochondrion · dividing versus resting · the Warburg effect

BEFORE THIS SESSION [Vander Heiden et al. — Understanding the Warburg Effect](#)

SESSION 9 SAT 3 OCT · CHAPTER 3 · 3.15

Where the open questions live · reading for gaps · four ideas this group abandoned, and why

BEFORE THIS SESSION [Hanahan & Weinberg — Hallmarks of Cancer](#)

- Assignment 3 set

SESSION 10 THU 8 OCT · CHAPTER 4 · 4.0 – 4.5

Four data types · the public resources · identifiers · barcodes · the two silent killers

BEFORE THIS SESSION [DepMap portal — search a gene you know](#)

- Assignment 3 due

SESSION 11 SAT 10 OCT · CHAPTER 4 · 4.6 – 4.10

The toolkit · making it rerunnable · defensive loading · normalisation and batch effects

BEFORE THIS SESSION [The Turing Way — reproducible research](#)

- Assignment 4 set · QUIZ 2 opens

SESSION 12 THU 15 OCT · CHAPTER 5 · 5.0 – 5.4

How to use the reference · describing one column · the z-score · distributions

BEFORE THIS SESSION [Seeing Theory — interactive probability](#)

- Assignment 4 due · Quiz 2 closes

SESSION 13 SAT 17 OCT · CHAPTER 5 · 5.5 – 5.7

The logic of a test · what a p-value is not · effect size · testing many things at once

BEFORE THIS SESSION [StatQuest — p-values and FDR](#)

SESSION 14 THU 22 OCT · CHAPTER 5 · 5.8 – 5.9

Regression and adjustment · screen versus arbiter · honesty in code · the notebook skeleton

BEFORE THIS SESSION [Calling Bullshit — the causality lectures](#)

SESSION 15 SAT 24 OCT · CHAPTER 5 · 5.10 – 5.15

Working the reference half — choosing a method for a question you actually have

BEFORE THIS SESSION [Nature Methods — Points of Significance](#)

- **Assignment 5 set**

SESSION 16 THU 29 OCT · CHAPTER 6 · 6.1 – 6.4

Find a question · sharpen it · check it is worth doing · design it and pre-register

BEFORE THIS SESSION [Center for Open Science — preregistration](#)

- **Assignment 5 due**

SESSION 17 SAT 31 OCT · CHAPTER 6 · 6.5 – 6.8

Run it · read the result · decide what happens next · presentations

BEFORE THIS SESSION [Platt — Strong Inference \(read it again\)](#)

- **Assignment 6 set · QUIZ 3 opens**

◆ KEY IDEA — After 31 October

The taught programme ends, but Assignment 6 does not. The capstone continues as supervised project work through November, with a final presentation once your analysis is run.

That is deliberate. You cannot design, run and honestly interpret a piece of research inside a two-hour session, and pretending otherwise would teach exactly the wrong lesson.