

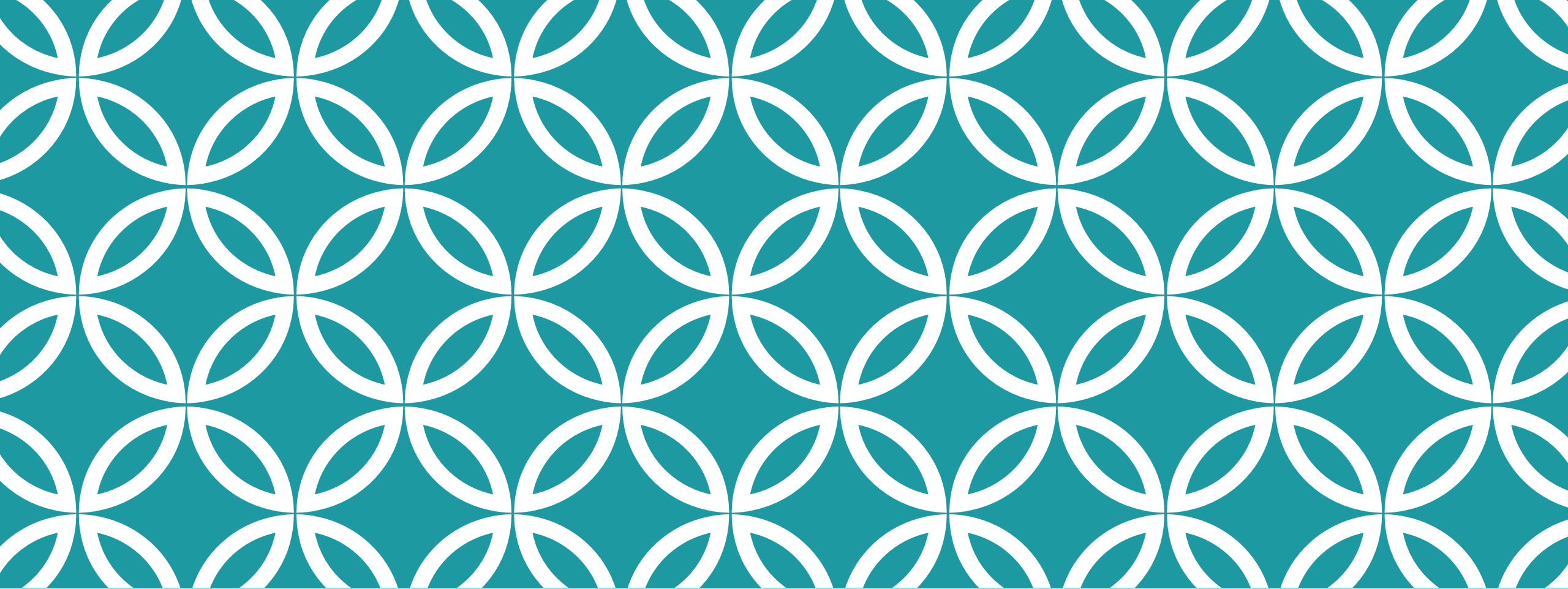
ACADEMIC WRITING AS PROCESS |

LANGUAGES OF SCIENCE (S. DARIAN)

What is scientific thinking? How does it differ from other modes of thinking?

What is scientific inquiry?

What is meant under the concept of “languages of science”?



THE LANGUAGE OF DEFINITIONS



PRELIMINARY DEFINITIONS VS SPECIFIC DEFINITIONS

The Rhetorical Dimension of Each Definitions

Biomechanics is the science concerned with the internal and external forces acting on the human body and the effects produced by these forces.

Kinetics is a study of the cause of motion, namely forces and torques e.g. forces between the feet and the ground when jumping and **Kinematics** is the study of movement with reference to the amount of time taken to carry out the activity.

DEFINITIONS: GENERAL AND SPECIFIC

What definitions are there in your field of research?

What is the key definition you use in your research?

Would you agree with the statement that there should be at least one definition in any text?

SCIENTIFIC METHOD

QUESTION – the explanation of a specific observation

HYPOTHESIS – conjecture, both general and specific

PREDICTION – determining the logical consequences of the hypothesis

TESTING BY EXPERIMENTS

ANALYSIS

SCIENTIFIC METHOD IN REAL SCIENCE

QUESTION – previous investigation of DNA had determined its chemical composition (4 nucleotides) as well as the structure of a nucleotide

HYPOTHESIS – F. Crick and J. Watson hypothesized that DNA had a helical structure

PREDICTION – if DNA had a helical structure, its X-ray diffraction pattern would be X-shaped

EXPERIMENT – Rosalind Franklin crystallized pure DNA and performed X-ray diffraction to produce photo-51. The results showed an X-shape.

ANALYSIS – When Watson saw the detailed diffraction pattern, he immediately recognized it as a helix. He and Crick produced the model and got the Nobel Prize in 1962.