

# Teaching Deductive and Inductive Reasoning for Research

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## PAPER SYNOPSIS

It is questionable, notwithstanding that a single lecture would be more than enough to teach the two basic modes of reasoning: deductive, going from a set of premises to a 'necessary' conclusion and inductive, forming a general conclusion from specific instances; whether Palestinian university science programmes equip their graduates with a significantly higher degree of deductive and inductive reasoning capability than that which they would possess had they stayed away from formal education altogether.

The authors will give a qualitative problem analysis of the currently ineffective teaching of research thinking and methodology in the Palestinian universities and propose a solution: the implementation of a curricular philosophy called 'constructive alignment' <sup>1</sup>, which is a student-centred approach to learning and curriculum. This approach, applied to the whole degree programme is capable of building and nourishing, not only deductive and inductive reasoning, but any required universal skill set into Palestinian university curricula.

Special references will be made to Bloom's taxonomy of learning domains <sup>2</sup> and the problems of Palestinian exam-centred assessments, which are based heavily upon knowledge retrieval at the expense of higher levels of cognitive function.

In addition, the authors will describe how new flagship programmes in applied biomedical related sciences are being constructed as part of the long-term vision of the Palestine Polytechnic University - "Towards a Science, Technology, and Innovation Global University by the year 2016".