Redesigning a course to include research led teaching (using software development methodologies)

Redesigning a course to include research led teaching (using software development methodologies)(so as to encourage an active learning environment)

Redesigning a course to include research led teaching (using software development methodologies)(so as to encourage an active learning environment) (using a flipped learning approach)

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Redesigning a course to include research led teaching (using software development methodologies)(so as to encourage an active learning environment) (using a flipped learning approach) (... open teaching resources ...) (... sustainable software fellow ...)(and some other stuff)

'In the STEM classroom should we ask or should we tell?"

Active learning increases student performance in science, engineering, and mathematics Freeman et al. 2014 (PNAS)

FLIPPED LEARNING

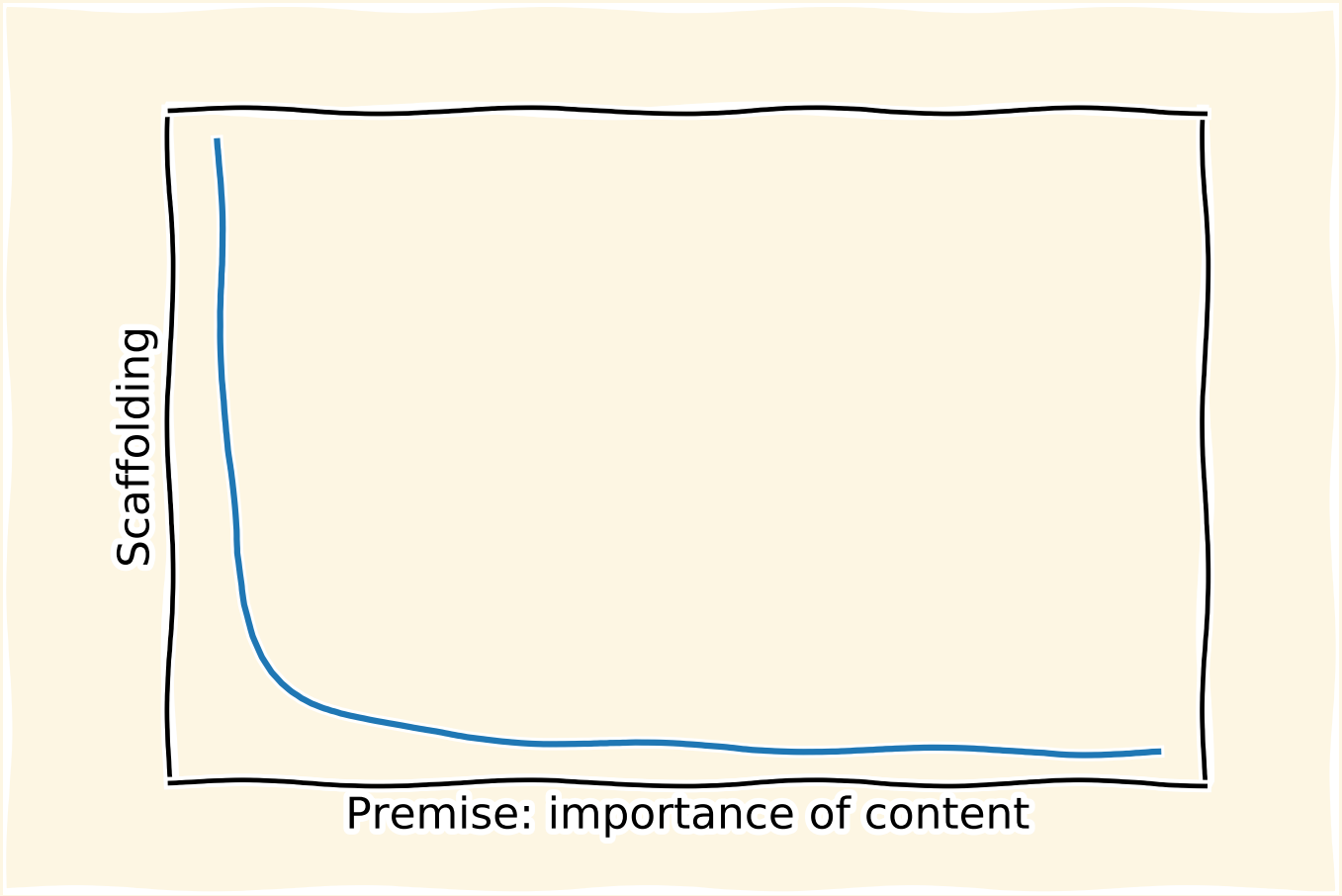
A Guide for Higher Education Faculty

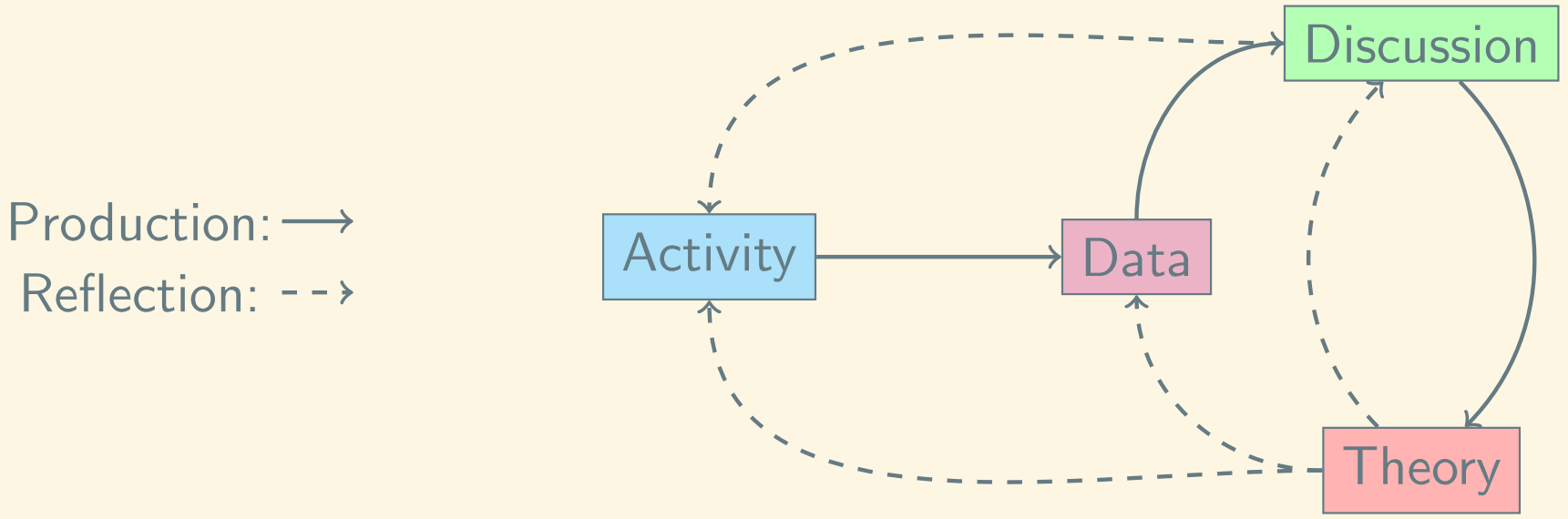
ROBERT TALBERT

Foreword by JON BERGMANN

Video

IN FLIPPED CLASSROOMS, LECTURES ARE ASSIGNED AS VIDEOS FOR HOMEWO..
YOU DON'T NEED EITHER LECTURES OR VIDEO
imgflip.com


Scaffolding
Premise: importance of content



Playing Games: A Case Study in Active Learning Applied to Game Theory Knight. 2015 (MSOR Connections)

Squad	1	2	3	8	9
Cake	1	2	3	3	4

Crew	5	5	10	11	12
Gauss	0	5	5	6	7

Squad	3	3	3	3	4
Crew	3	3	3	8	9

Cake	3	6	9	12	12
Gauss	3	6	9	12	17

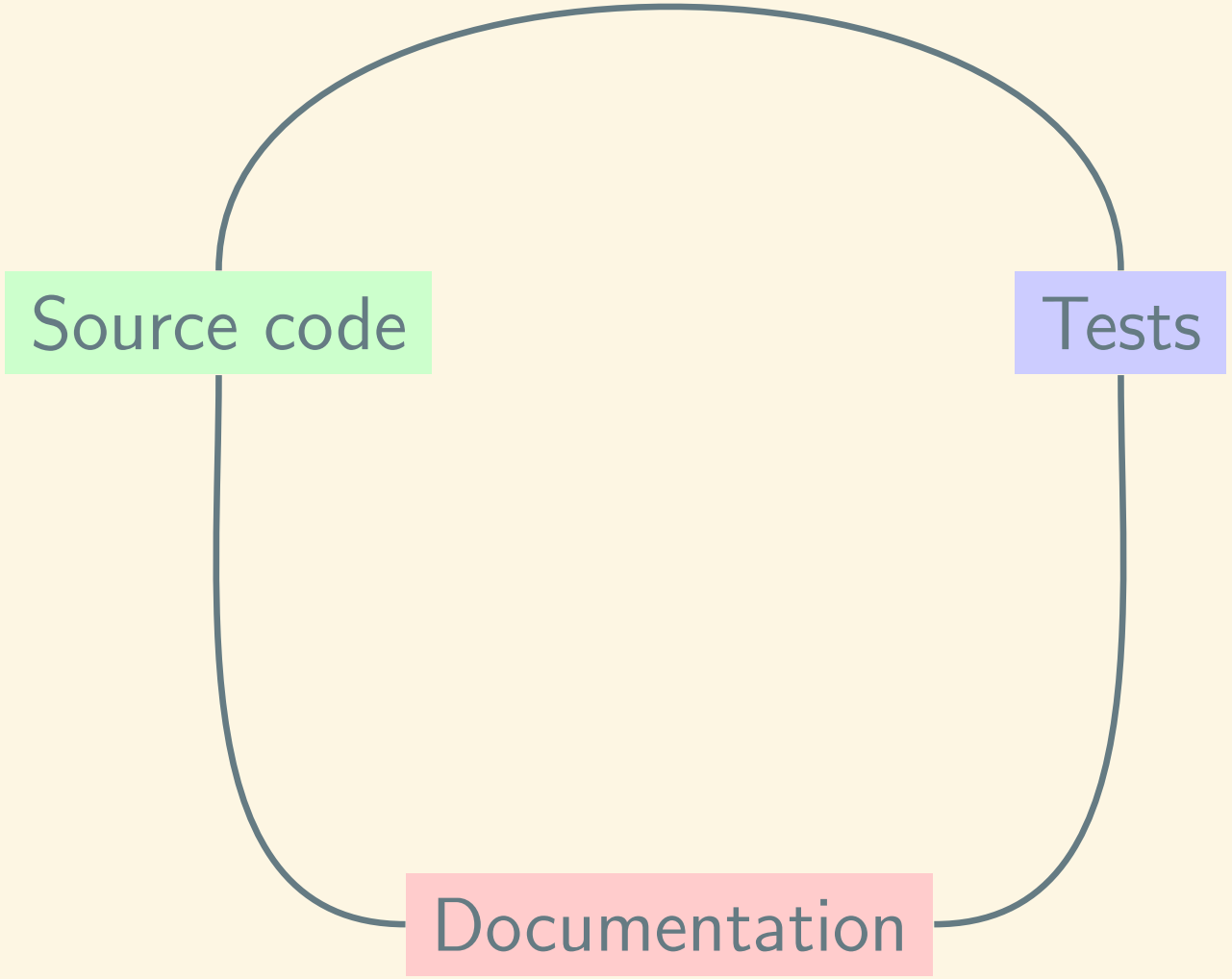
Squad	3	6	9	14	15
Gauss	3	6	9	9	10

Cake	1	2	3	8	8
Gauss	1	2	3	3	8

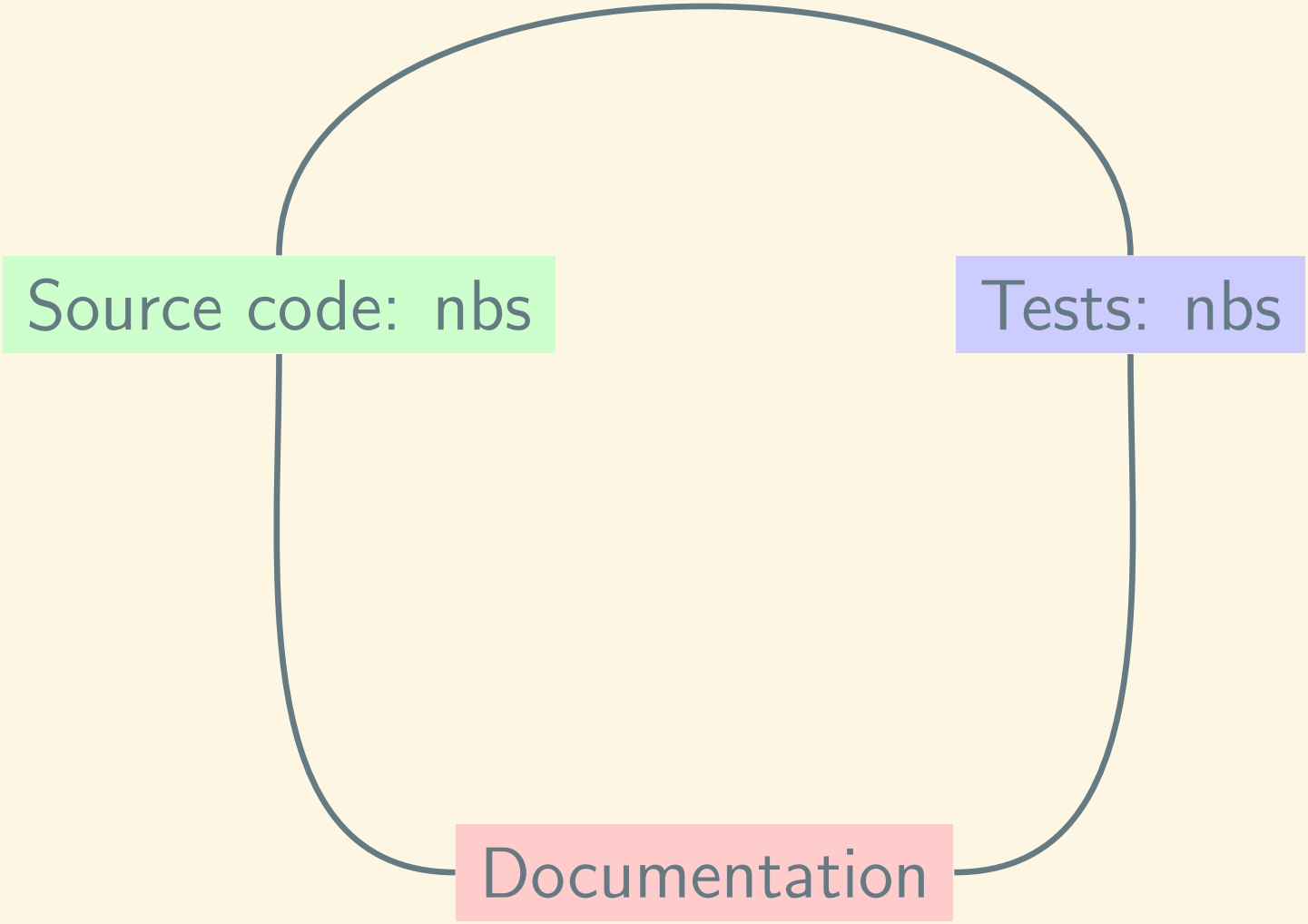
3,3	0,5
5,0	1,1

Squad	9	13	28
Cake	4	16	24
Crew	12	21	31
Gauss	7	24	34

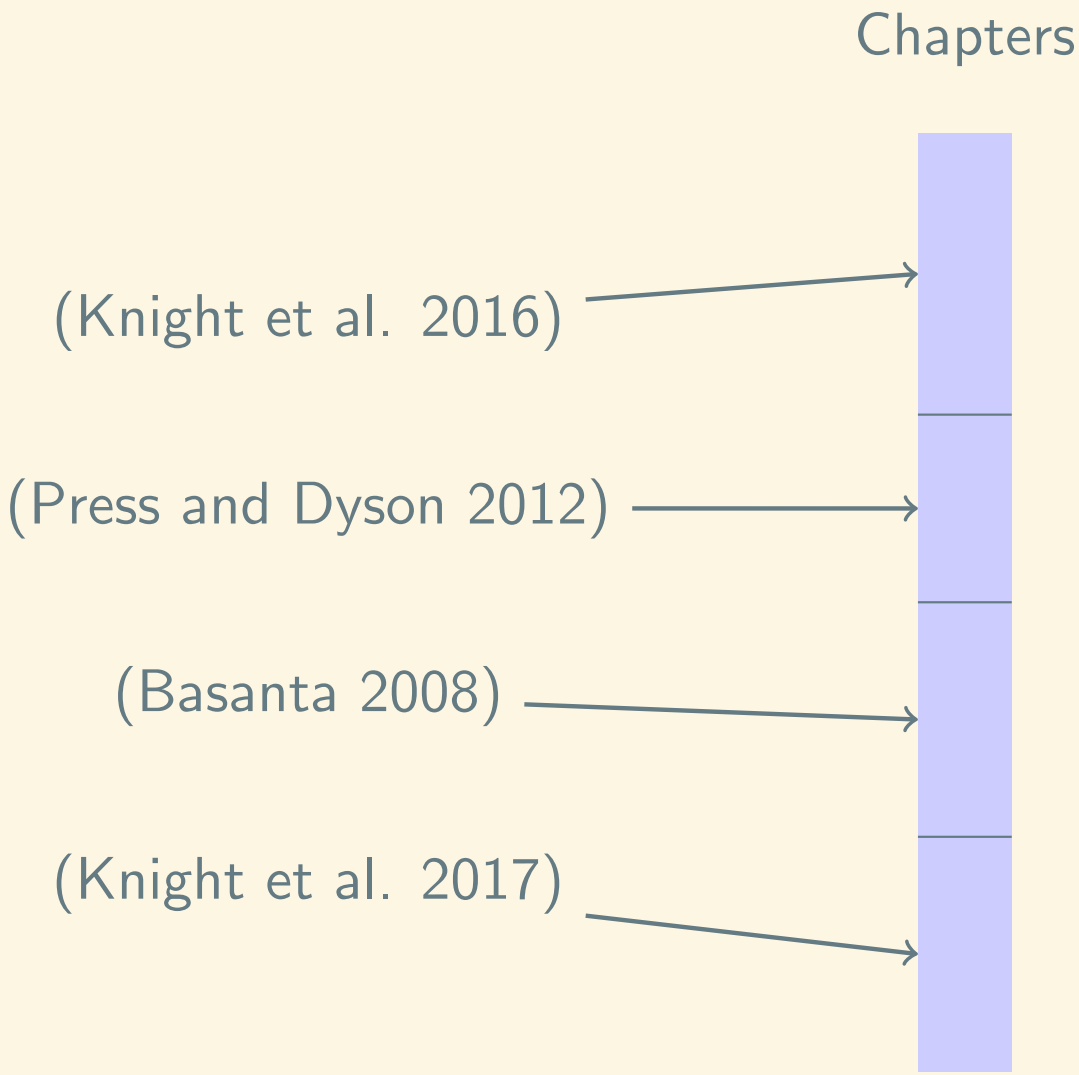
Software
Sustainability
Institute


Source code
Tests
Documentation

Jupyter


Source code: nbs
Tests: nbs
Documentation

Research led teaching.


Chapters
(Knight et al. 2016)
(Press and Dyson 2012)
(Basanta 2008)
(Knight et al. 2017)

Assessment

- Research software;
- Contemporary research.

- https://github.com/Axelrod-Python/Axelrod
- https://github.com/drvinceknight/Nashpy
- https://github.com/drvinceknight/gt
- http://vknight.org/gt/

(Dr Stephen Rutherford. BIOSCI.)