The text introduces students to molecular cell biology within the context of a semester-long research project in functional genomics. In the *Pathways over Time* project, students study the evolutionary conservation of genes in methionine synthesis. Each chapter includes both theoretical background material as well as detailed experimental procedures. Chapters can be used alone or in combination, depending on the course.
1: Introduction

2: Mastering the micropipette

3: Meet the yeast
4: Working with Yeast

• 5: Introduction to databases

• 6: Analysis of mutant strains
7: Yeast colony PCR

8: Agarose gel electrophoresis

9: Protein Conservation
10: Plasmids

11: Restriction mapping
12: Yeast Transformation

13: Protein overexpression
14: SDS-PAGE

15: Western blots

16: Write It Up!

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Thumbnail: A diagram of a typical prokaryotic cell. (Public Domain; Mariana Ruiz Villarreal, LadyofHats).