Frank | Bernanke | Osberg | Cross | MacLean



Principles of Macroeconomics

second canadian edition

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Principles of Macroeconomics Second Canadian Edition

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Professor Frank is the author of a best-selling intermediate economics textbook—*Microeconomics and Behavior*, Fourth Edition (Irwin/McGraw-Hill, 2000). He has published on a variety of subjects, including price and wage discrimination, public utility pricing, the measurement of unemployment spell lengths, and the distributional consequences of direct foreign investment. His research has focused on rivalry and cooperation in economic and social behavior.



Lars Osberg is currently the McCulloch Professor of Economics at Dalhousie University. He was born and raised in Ottawa, Ontario. As an undergraduate, he attended Queen's University, Kingston and the London School of Economics and Political Science, graduating from Queen's in 1968.

From 1968 to 1970 he served as a CUSO volunteer, working primarily with the Tanzania Sisal Corporation in Tanga, Tanzania. He received his Ph.D. in Economics from Yale University in 1975.

His first book was *Economic Inequality in Canada* (1981), which has been followed by nine others, most recently *The Unemployment Crisis: All for Naught* (1996) (with Brian MacLean), *Hard Money, Hard Times* (1998) (with P. Fortin) and *The Economic Implications of Social Cohesion* (Editor) 2003. He is also the author of numerous refereed articles, book chapters, reviews, reports and miscellaneous publications. His major fields of research interest have been the measurement and determinants of poverty and economic well being, with particular emphasis in recent years on social policy and the implications of changing patterns of working time. Among other professional responsibilities, he was president of the Canadian Economics Association in 1999/2000 and is now Review Editor for the *Review of Income and Wealth*.



Ben S. Bernanke received his B.A. in economics from Harvard University in 1975 and his Ph.D. in economics from MIT in 1979. He taught at the Stanford Graduate School of Business from 1979 to 1985 and moved to Princeton University in 1985, where he is the Howard Harrison and Gabrielle Snyder Beck Professor of Economics and Public Af-

fairs, and currently Chairman of the Economics Department. He has consulted for the Board of Governors of the European Central Bank and other central banks, and he serves on a U.S. State Department Committee that advises the Israeli government on economic policy. He is a Fellow of the Econometrics Society and a Research Associate for the National Bureau of Economic Research. He has been a visiting scholar at the Federal Reserve System in Boston, Philadelphia, and New York, and he is currently an advisor to the Federal Reserve Bank of New York.

Professor Bernanke's intermediate textbook, with Andrew Abel, *Macroeconomics*, Third Edition (Addison-Wesley, 1998) is a best seller in its field.



Melvin L. Cross received an Associate of Arts degree from Dawson Community College in 1968, a B.A. from the University of Montana in 1970, an M.A. from Simon Fraser University in 1972, and a Ph.D. in economics from Texas A&M University in 1976. He is an Associate Professor in the Department of Economics at Dalhousie University, which

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Brian K. MacLean is Professor and Chair of Economics at Laurentian University in Sudbury, Ontario, where he has been Director of the Institute of Northern Ontario Research and Development and the organizer of an annual economic policy conference series. He speaks Japanese as a second language and has been a visiting professor

at Hokkaido University in Sapporo, Japan, and at Saitama University, just outside of Tokyo. He has edited Out of Control? Canada in an Unstable Financial World (Lorimer, 1999), co-edited The Unemployment Crisis: All for Naught? (McGill-Queen's, 1996) and has published in the Cambridge Journal of Economics, Review of Income and Wealth, Canadian Business Economics, and other journals. His keen interest in economic policy issues is reflected in these publications and also in the monthly economics columns he has written for the National Post for two years.

Dedication

For Ellen R. H. F.

For Anna B. S. B.

For Molly L. S. O.

For Carmelita, Anna, Nathan, and Thomas M. L. C

For Kathleen and Vera, in memory of Ken B. K. M.

Preface

Feedback from users of our first edition supports our conviction that this text-book provides a different, and better, way to introduce beginning students to economics. This text continues to emphasize: (1) an active, student-centred approach to learning; (2) economic naturalism; (3) the philosophy that evidence matters, and (4) repeated use of core principles.

ACTIVE LEARNING

Active learning by students—that is, learning based on applying new ideas until they are internalized—is an essential part of an effective learning process. By "learning" we do not mean being able to answer a test question the next day. By the time they reach university, many students have become quite good at quick memorization—and at forgetting "useless stuff" equally rapidly. But even the brightest students never fully internalize a concept unless they use it repeatedly. This textbook has been designed for instructors who strive to stimulate the intellectual curiosity of their students and thereby have an enduring impact on them. So we think it is useful for instructors to ask themselves: "What do I want my students to retain from this course, five, ten, or twenty years from now?" Education research shows that long-term retention depends on students seeing both the value of a concept and *actively* using it. Throughout the book we use a number of devices to foster active learning.

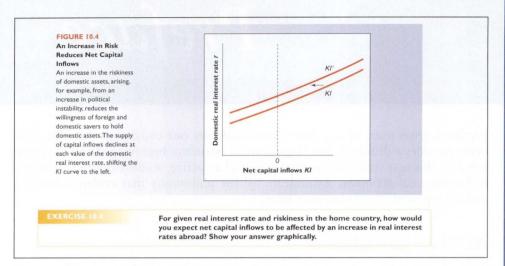
1. Worked Examples. New ideas and concepts are introduced by means of simple examples, usually numerical, which are developed step by step in the text. These examples display the reasoning process used to reach the economic conclusion or insight, and they provide a model for the student to apply when working exercises and problems.

EXAMPLE 10.3 How much should you pay for a share of FortuneCookie.com? You have the opportunity to buy shares in a new company called Fortune Cookie.com, which plans to sell gourmet fortune cookies over the Internet. Your stockbroker estimates that the company will pay \$1.00 per share in dividends a year from now, and that in a year the market price of the company will be \$80.00 per share. Assuming that you accept your broker's estimates as accurate, what is the most that you should be willing to pay today per share of FortuneCookie.com? How does your answer change if you expect a \$5.00 dividend? If you expect a \$1.00 dividend but an \$84.00 stock price in one year? Based on your broker's estimates, you conclude that in one year each share of FortuneCookie.com you own will be worth \$81.00 in your pocket—the \$1.00 dividend plus the \$80.00 you could get by reselling the stock. Finding the maximum price you would pay for the stock today therefore boils down to asking how much you would invest today to have \$81.00 a year from today. Answering this question in turn requires one more piece of information, which is the expected rate of return that you require in order to be willing to buy stock in this company.

2. Exercises. Following many examples, and indeed throughout each chapter, we pose exercises in the running text that challenge the student to test and extend his or her understanding of the ideas being discussed. Answers to these exercises are provided at the end of the chapter, allowing immediate feedback.



The flow of saving increases the stock of wealth in the same way the flow of water through the faucet increases the amount of water in the tub.



- 3. Anecdotes and Illustrations. Active learning is more likely to take place when students are engaged and motivated. We begin every chapter with an anecdote that motivates the discussion, and we illustrate the ideas with memorable cartoons, photographs, and original line drawings. Most important, we have striven to minimize jargon and engage the student with direct, friendly writing.
- 4. Recap Boxes and Summaries. To keep students focused on the forest as well as the trees, at strategic points in each chapter we have provided "recap boxes." Recaps summarize the main ideas of the previous section. The recap boxes are also reiterated by bulleted end-of-chapter summaries, which are designed to review the most important concepts presented in the chapter.

Motivations for personal saving include saving to meet long-term objectives, such as retirement (life-cycle saving), saving for emergencies (precautionary saving), and saving to leave an inheritance or bequest (bequest saving). The amount that people save also depends on macroeconomic factors, such as the real interest rate. A higher real interest rate stimulates saving by increasing the reward for saving, but it can also depress saving by making it easier for savers to reach a specific savings target. On net, a higher real interest rate appears to lead to modest increases in saving. Psychological factors may also affect personal saving rates. If people have self-control problems, then financial arrangements (such as automatic payroll deductions) that make it more difficult to spend will increase their saving. People's saving decisions may also be influenced by demonstration effects, as when people feel compelled to spend at the same rate as their neighbours, even though they may not be able to afford to do so.

5. Review Questions and Problems. Questions for review at the end of each chapter encourage the student to test his or her understanding of the main ideas of the chapter. End-of-chapter problems are carefully crafted to help students internalize and extend core concepts.

ECONOMIC NATURALISM

Economics is fascinating because of its power to explain the world around us. As an extension of the active-learning approach, we encourage students to become "economic naturalists" who use basic economic principles to understand and explain what they see around them in the "laboratory of life."

Studying biology enables people to observe and marvel at many details of the natural environment that would otherwise have escaped their notice. For the naturalist, a walk in a quiet wood becomes an adventure. In much the same way, studying economics can enable students to see the world in which they live and work in a new light. Throughout the text, Economic Naturalist examples show students how economics can help them to understand the world they live in. In

this edition we have trimmed the number and retained only the best examples of Economic Naturalist. The following are just some of the issues raised:

- How does comparative advantage arise and why might countries not take advantage of it?
- Does GDP measurement by Statistics Canada ignore the underground economy?
- When is a bad time to take out a mortgage?
- Why did the Coca-Cola Company stop testing a vending machine that "knows" when the weather is hot?
- What is the macroeconomic impact of a sharp drop (or rise) in world oil prices?
- Why have 12 European countries adopted a common currency?
- Does a strong Canadian dollar imply a strong Canadian economy?

If students learn to pose and answer such questions on their own, they are likely to use economics long after completing an introductory course.



How could Canada have a current account deficit but a trade surplus?

As shown by Figure 10.2, over the last few decades, Canada's current account balance has tended to be negative even while its net exports have tended to be positive. How can this be?

only net exports, but also net investment income and net transfers. Net transfers represent foreign aid as well as private remittances across borders, and are a small part of the current account. The primary reason for the current account deficits must therefore lie in net investment income, which has been strongly negative for Canada's pull the current account into deficit. However, by the history, from -\$208 million in 1926 to -\$23.5 billion in

Investment income is composed of profits, interest, and dividends on past investments. If net investment income is negative, then more of these kinds of payments are leaving Canada than are entering. This would occur Recall that the current account balance includes not because of prior sales of Canadian assets to foreign residents. These sales entail the future repatriation of profits, interest, and dividends to the foreign owners of the Cana-

If Canada's net exports are positive but relatively low, then negative net investment income will be sufficient to 1999-2003 period, the sharp rise in Canada's net exports was adequate to bring the current account into surplus.

EVIDENCE MATTERS

Getting students to appreciate the power of economic theory is a crucial goal of an introductory course. But if a simple model of supply and demand were all that mattered to understand economic issues, then all problems of economic policy could be solved by anybody who has taken the one all-purpose economics course taught at universities (or high schools). Practising economists, however, know that much of the intellectual fascination of economics comes from the interplay of theory and data. As instructors, we hope to expose students to this interplay, in part because many students (particularly the smarter ones) are turned off by the unrealism of a "one size fits all" approach. That is why we return continually to the theme that "evidence matters."

REPEATED USE OF CORE PRINCIPLES

A few core principles arise again and again in economics, especially in microeconomics, but also in macroeconomics. By repeating these core principles even in the macroeconomic chapters (4 to 17), the text enhances the likelihood that students will leave the course with a thorough appreciation of the principles. A small icon appears in the margin whenever one of the core principles is discussed, thereby reinforcing the principles many times over. The core principles are listed on the inside back cover.

> The Cost-Benefit Principle: An individual (or a firm or a society) will be better off taking an action if, and only if, the extra benefits from taking the action are greater than the extra costs.



WHAT IS NEW AND IMPROVED IN THIS EDITION

- Introductory Material Shortened and Refined: The material from the first edition's Chapters 1 and 2 has been rewritten and condensed into one chapter in an effort to launch these important concepts as clearly and efficiently as possible. In Chapter 3, this edition introduces the market for foreign exchange as one of the primary examples of supply and demand in action.
- Micro Labour Material Deleted: The labour market chapter from the first edition has been eliminated. Essential macroeconomic elements from the chapter have been moved to the chapters on long-run growth and business fluctuations.
- Open Economy Model Moved to Earlier Chapter: Chapter 11 of the first edition dealt with financial markets, money, and central banking; the topic of international capital flows was dealt with as part of a later, international chapter. This edition introduces the market for foreign exchange as one of the primary examples of supply and demand in action in Chapter 3 and provides students with an earlier introduction to international capital flows, by splitting the old Chapter 11 into two chapters titled "Money, Banks, and Central Banking" (Chapter 9, which now includes a short section on the history of money) and "Financial Markets and International Capital Flows" (Chapter 10).
- Short-Run Coverage Made More Accessible: The development of the Keynesian Cross in Chapters 12 and 13 places more emphasis on graphs and verbal explanations, with an optional mathematical treatment in the appendix. The new presentation makes it easier for students to understand the basic economic concepts underlying the short-run model. Chapter 13 continues to focus on the Bank of Canada's use of the interest rate (overnight rate target) as the primary policy tool, allowing students to more easily relate economic concepts to the real-world macroeconomic policy decisions reported in the news.
- New Aggregate Demand-Aggregate Supply Chapter Added: The first edition of this textbook contained a unique chapter on the new mainstream Keynesian Model relating output to the inflation rate. In this edition, that chapter has been supplemented with a more traditional chapter on aggregate demand-aggregate supply (AD-AS) analysis in which output is related to the price level. Reviewers have given this chapter high praise.
- Trade Chapter Made More Engaging: Chapter 16 now kicks off with a new section on Canada's role in the international trading system.
- Textbook as a Whole Streamlined: This edition has been made shorter by eliminating parts of chapters, combining chapters and by streamlining some of the worked examples and economic naturalist features.

THOROUGHLY CANADIAN MACRO

A macro textbook directed to a Canadian audience must confront head-on the interdependence of national economies. Our book places a strong *emphasis* on open economy issues. It starts with an analysis of international trade (Chapter 2) and progresses to such issues as the historical contribution of non-resident saving to Canadian capital formation (Chapter 8), the open-economy loanable funds model, the connection between the current account balance and international capital flows (both Chapter 10), the role of Canada's flexible exchange rate in amplifying the impact of monetary policy (especially Chapters 13 and 15), the causes and effects of protectionism (Chapter 16; also discussed in Chapter 2), and currency appreciation and depreciation (Chapter 17).

In addition, a Canadian macroeconomics textbook needs to introduce students to Canadian data, institutions, and policies. Beginning in Chapter 4, we introduce macroeconomic data on the Canadian economy through the use of figures and tables. We have carefully documented the sources of data, and in most cases databased figures and tables provide the relevant data series label, not just the table number from Statistics Canada's CANSIM database. We have also included a data appendix at the end of the textbook, which uses CANSIM time series to show the major trends in the Canadian economy in recent decades. The explanatory notes for the data appendix provide an overview of the meaning and significance of the macroeconomic variables that are key to studying the Canadian economy.

Our discussion in Chapter 6 of the causes and consequences of changes in the rate of inflation draws on the Canadian macroeconomic policy literature. In analyzing saving and investment in Chapter 8, we link the discussion to Statistics Canada data from the "Savings, Investment, and Net Lending" table of the *National Income and Expenditure Accounts*. When we examine net capital inflows in Chapter 11, we link the discussion to data from *Canada's Balance of International Payments* and are careful to highlight the distinction between the current account balance and net exports. We introduce our discussion of international trade in Chapter 16 with an empirical section on Canada's role in the global economy.

Monetary policy is crucial for a trade-dependent nation in a world of floating exchange rates. To understand Canadian macroeconomic issues today, it is essential to understand how the Bank of Canada operates. We emphasize that the Bank's stated goal is to keep inflation in the range of 1 to 3 percent and that the instrument the Bank uses to achieve its goal is the overnight rate target, by changing the overnight rate target in response to changes (or anticipated changes) in inflation.

Relevant examples make the discussion of Canadian data, institutions, and policies come alive for students. Our Economic Naturalist examples dealing specifically with the Canadian economy answer questions such as:

- Why was September 1981 an incredibly bad month for a Canadian family to take out a five-year mortgage?
- Why did the Canadian stock market boom in the latter half of the 1990s?
- Why did the Bank of Canada cut the overnight rate target nine times during the most recent economic slowdown?

ORGANIZATION OF TOPICS

Principles of Macroeconomics is divided into five parts. Part 1 (Chapters 1–3) introduces basic economic concepts, including the core principles. Part 2 then brings the student into the realm of macroeconomics. Chapter 4 gives an overview of the issues that macroeconomists study. Chapters 5 and 6 focus on issues of measurement: Chapter 5 looks at measures of real activity, such as GDP and the unemployment rate, and Chapter 6 considers measures of the price level and inflation. As preparation for our model of output and inflation rate determination, we provide students with a thorough grounding in the terminology they need to discuss changes in the inflation rate.

No topic in economics is more important to living standards than the sources of long-term output and productivity growth. The four chapters of Part 3 therefore focus on long-term economic performance. Chapter 7 reviews Canada's remarkable record of long-term economic growth and discusses the factors (such as rising levels of education, fixed capital formation, and improvements in technology) that have contributed to productivity growth. Chapter 8 analyzes how saving (including non-resident saving) is related to economy-wide investment, and discusses factors affecting savings and investment decisions. Saving and capital investment are mediated by financial markets, which are discussed in Chapters 9 and 10. Chapter 9 introduces the concept of money and discusses how central

banks operate. Chapter 10 deals with bond and stock markets and with international capital flows.

With that as background, Part 4 studies the short-run behavior of the economy, including cyclical fluctuations and stabilization policy. Chapter 11 introduces short-term fluctuations in the economy and includes descriptions of Canada's experience with recessions and expansion, the characteristic behaviour of unemployment and inflation during business cycles, and the measurement of an economy's output gap. In the short run, changes in aggregate spending can affect output. Chapter 12 looks at the relationship between planned aggregate spending and output in the very short run, when prices are fixed and firms simply meet the demand for their output. In this setting, government policies that affect planned aggregate spending such as changes in government purchases can help to eliminate output gaps. Maintaining the short-run focus, Chapter 13 adds monetary policy and the Bank of Canada to the story. Chapter 14 dispenses with the assumption of a fixed price level, and considers output and price level determination in the context of a traditional model of aggregate demand and supply. Chapter 15 presents a model according to which the output gap will eventually cause the inflation rate to change. This in turn (via the central bank's policy reaction function) triggers a mechanism that eliminates output gaps over time. Chapter 15 also considers other sources of inflation, notably aggregate supply shocks, and the policy dilemmas these create.

In Part 5 the focus is entirely on the international dimensions of the economy. Chapter 16 extends Chapter 2's analysis of comparative advantage to look at the case for and against freer trade and discusses Canada's role in the global economy. Chapter 17 extends the discussion of exchange rates found in Part 4 and also analyzes the constraints that a fixed exchange-rate regime places on domestic monetary policy.

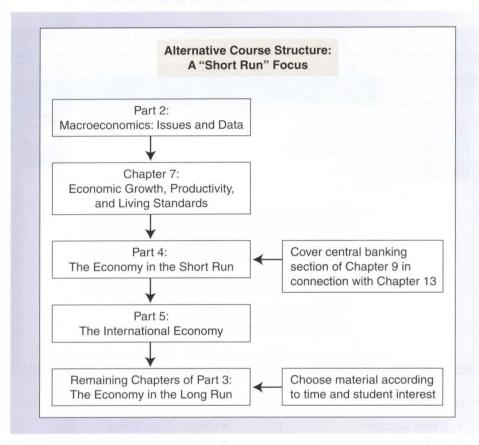
ALTERNATIVE COURSE STRUCTURES

As our discussion of the organization of topics indicates, there is a well-developed logic to the structure and coverage of this textbook. But naturally each instructor will teach the material a bit differently. Some will decide to cover less material, others may prefer to teach the short-run chapters of Part 4 before the long-run chapters of Part 3, and still others may choose to cover the international chapters of Part 5 before the Part 4 chapters. The textbook lends itself to these and other course structures. The following are options for covering less material, regardless of the sequencing of the chapters. We then discuss two alternative paths through the chapters.

What are the options for covering less material? Part 1 can be skipped, of course, if this textbook is used in the second term of a course that covers microeconomics in the first term. We believe that most instructors should cover Part 2. Otherwise students may fail to develop a good grasp of what the key macroeconomic variables—GDP, the unemployment rate, and the inflation rate—really represent and of how real variables differ from nominal ones. In Part 3, Chapter 7 on economic growth is the most critical chapter. Some instructors may wish to provide abbreviated coverage of Chapter 8, which provides exceptionally thorough coverage of saving and capital formation. Chapter 9 deals with the traditional question of how commercial banks create money, but instructors pressed for time may ask themselves whether the payoff in enhanced student analytical capacity is worth the time and effort. The coverage of bond and stock price determination in Chapter 10 is something many students find both fascinating and practical, but later chapters do not depend directly on this material. In Part 4, Chapter 13 provides two alternative theories of interest rate determination—the vertical money supply theory and the modern central banking theory. We note that both theories come to the same bottom line, but by different analytical routes, so different instructors may make different choices as to which to emphasize. Chapters 14 and 15

provide alternative macroeconomic models—Chapter 14 deals with a traditional aggregate demand–aggregate supply model of output and price level determination whereas Chapter 15 presents a more recent model of output and inflation rate determination. Some instructors will decide to skip one of these two chapters. Finally, some instructors may decide that the coverage of comparative advantage in Chapter 2 is adequate to the needs of their students and will omit the coverage in Chapter 16.

SHORT-RUN FIRST OPTION



Many Canadian instructors like to cover the "short run" material early in the course so they can be sure they have the time necessary to teach it thoroughly. To meet this objective, we would recommend the following sequence of macroeconomics chapters. First, cover Part 2 to introduce students to the subject and to measurement issues. Second, move on to Chapter 7 to give students an appreciation of the importance of long-term growth. Third, jump ahead to the short-run chapters (Part 4) and give them the attention you think they require. Fourth, turn to the international chapters (Part 5). Finally, cover as much of Chapters 8, 9, and 10 as time permits. The only significant adjustment necessitated by this alternative sequence of chapters is that the section on central banking in Chapter 9 should be assigned to students, or summarized for them, in conjunction with Chapter 13 on monetary policy.

As well, many Canadian instructors like to cover the "international" material early in the course. Chapters 16 and 17 should be taught after Parts 1 and 2. But otherwise they can be positioned as early in the sequence of chapters as the instructor desires. However, instructors should keep in mind that if Chapter 17 is covered before Chapter 13, then the discussion of monetary policy in Chapter 17 should be supplemented by the instructor, as students will have had very little prior exposure to the topic.

TECHNOLOGY SOLUTIONS

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- Glossary and Key Terms
- Chapter Summary

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ISERVICES

McGraw-Hill Ryerson offers a unique *i*Service package designed for Canadian faculty. Our mission is to equip providers of higher education with superior tools and resources required for excellence in teaching. For additional information, visit *www.mcgrawhill.ca/highereducation/iservices*.



TEACHING, TECHNOLOGY & LEARNING CONFERENCE SERIES

The educational environment has changed tremendously in recent years, and McGraw-Hill Ryerson continues to be committed to helping you acquire the skills you need to succeed in this new milieu. Our innovative Teaching, Technology & Learning Conference Series brings faculty together from across Canada with 3M Teaching Excellence award winners to share teaching and learning best practices in a collaborative and stimulating environment. Pre-conference workshops on general topics, such as teaching large classes and technology integration, will also be offered. We will also work with you at your own institution to customize workshops that best suit the needs of your faculty.



RESEARCH REPORTS INTO MOBILE LEARNING AND STUDENT SUCCESS

These landmark reports, undertaken in conjunction with academic and private sector advisory boards, are the result of research studies into the challenges professors face in helping students succeed and the opportunities that new technology presents to impact teaching and learning.

COMPREHESIVE TEACHING AND LEARNING PACKAGE

We believe that an ancillary package is most useful if each element in it is part of a well-considered whole. Each member of this book's development team is committed to the quality and cohesiveness of the supplementary package.

FOR THE INSTRUCTOR



Instructor's CD-ROM This CD-ROM contains all of the necessary Instructor Supplements, including:

- Instructor's Manual Adapted by Teresa Cyrus of Dalhousie University, this manual is extremely useful for all teachers, but especially for those new to the job. It offers suggestions for using the Study Guides, the Test Bank, and the Economic Naturalist cases. It supplies sample syllabi with assignments, sample exams, and supplemental material. For each chapter, it provides an overview, an outline, teaching objectives, additional Economic Naturalist discussion questions, answers to textbook questions and problems, homework assignments with answers, and sample quizzes with answers.
- Computerized Test Banks The test banks (micro and macro), ensure maximum flexibility in test preparation, including the reconfiguring of graphing exercises. The Micro Test Bank is prepared by Chandan Shirvaikar of Red Deer College and the Macro Test Bank by Akhter Faroque of Laurentian University. Collectively, the test banks contain more than 5000 multiple-choice questions categorized by Learning Objective; Learning Level (knowledge, comprehension, application, analysis); Type (graph, calculation, word problem); and Source (textbook, Study Guide, Web, unique).
- PowerPoint Slides Adapted by Lars Osberg, Dalhousie University, this
 package contains dynamic slides of the important illustrations in the textbook, along with detailed, chapter-by-chapter reviews of the important
 ideas presented in the text. Carefully prepared concept maps relate the different topics in each of the micro and macro texts.

CBC Video Cases Accompanying the texts is a series of video segments drawn from CBC broadcasts of *Undercurrents*, *The National*, *Current Affairs*, and *Venture*. These videos have been chosen to aid students in relating real-world economic issues to the text, and to illuminate key ideas and concepts presented in the text. A set of instructor notes accompanies the segments available at the Instructor's Online Learning Centre. The video segments will be available in a VHS format for use in class and through video streaming on the Online Learning Centre accessible by both instructors and students.





