Personal Financial Planning 14th edition Billingsley Solutions Manual

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Personal Financial Planning 14th edition Billingsley Solutions Manual

Using Financial Statements and Budgets

Chapter 2

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Personal Financial Planning 14th edition Billingsley Solutions Manual

How Will This Affect Me?

- Americans do not prepare a detailed household budget and about 75 percent do not have enough savings to cover 6 months of expenses. These are scary numbers . . . and this chapter shows what you can do to avoid being part of these alarming statistics.
- Everyone knows that it's hard to get where you need to go if you don't know where you are. Financial goals describe your destination, and financial statements and budgets are the tools that help you determine exactly where you are in the journey. This chapter helps you define your financial goals and explains how to gauge your progress carefully over time.

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Learning Goals

LG1 Understand the relationship between financial plans and statements.

LG2 Prepare a personal balance sheet.

LG3 Generate a personal income and expense statement.

LG4 Develop a good record-keeping system and use ratios to evaluate personal financial statements.

LG5 Construct a cash budget and use it to monitor and control spending.

LG6 Apply time value of money concepts to put a monetary value on financial goals.

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Facts or Fantasies

- Whereas the balance sheet summarizes your financial condition at a given point in time, the income and expense statement reports on your financial performance over time.
- Because financial statements are used to record actual results, they're really not that important in personal financial planning.
- A lased car should be listed as an asset on your personal balance sheet.
- Only the principal portion of a loan should be recorded on the liability side of a balance sheet.
- Generating a cash surplus is desirable, because it adds to your net worth.
- When evaluating your income and expenses statement, primary attention should be given to the top line: income received.

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A True Statement

- "it's hard to get where you need to go if you don't know where you are"
- Financial Statements tell you where you are
- Balance Sheet reports your Assets, Liabilities, and New Worth as of a specified date
- Income Statement reports how you did over a period of time, month or year

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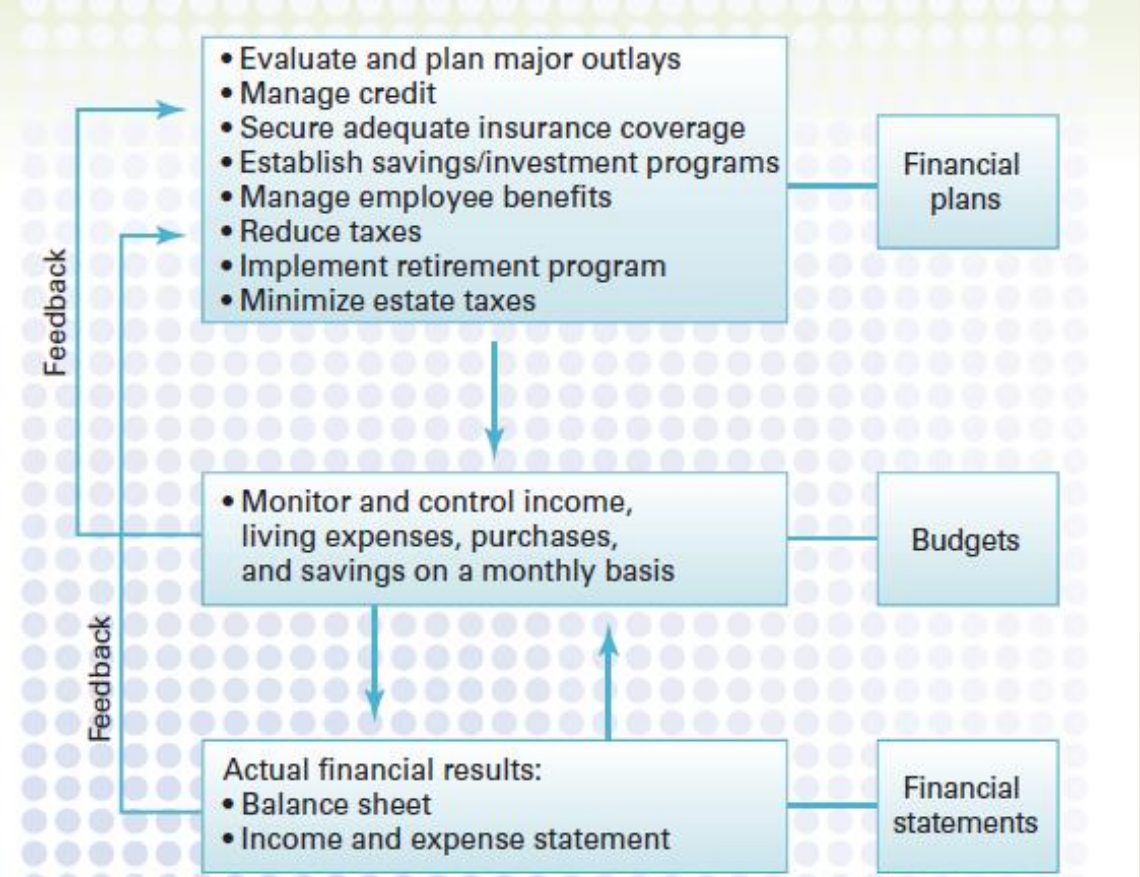
Relationship between Financial Plans and Financial Statements



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Balance Sheet – Tells you where you are

Problem 3 -- Worksheet 2.1							
Balance Sheet							
Names(s) Denise Fisher				Date	30-Jun-16		
Assets				**Liabilities and Net Worth**			
Liquid Assets:				Current Libaiblities			
Cash on hand		$ 70.00		Utilities		$ 90.00	
Cash in checking		150.00		Rent			
Savings accounts				Insurance premiums		220.00	
				Taxes		400.00	
Money market funds and deposits		650.00		Medical/dental bills			
Certificates of deposit <1 yr to maturity				Repair bills			
	Total Liquid Assets		$ 870.00	Bank credit card balances		400.00	
				Department store credit card balances		190.00	
Investments							
				Travel and entertainment card balances			
Stocks		$ 3,000.00					
				Gas and other credit balances			
Bonds		500.00					
Certificates of deposit <1 yr to maturity				Bank line of credit balances			
				Other current liabilities			
Mutual funds							
Real estate					**Total Current Liabilities**		$ 1,300.00
Retirement funds, IRA				Long-term Liabilities			
Other				Primary residence mortgage		$52,000.00	
	Total Investments		$ 3,500.00	Real estate investment mortgage			
Real Property							
Primary residence		$68,000.00		Autos loans		3,000.00	
Second home				Applicance/furniture loans		500.00	
Other				Home improvement loans			
	Total Real Property		$68,000.00	Single-payment loans			
Personal Property				Education loans			
Autos		$ 9,775.00		Margin loans used to purchse securities			
Autos				Other long-term liabilities			
Recreational vehicles							
Household furnishings		1,050.00			**Total Long-Term Liabilities**		$ 55,500.00
Jewelry and artwork							
Other		900.00			**Total Liabilities**		$ 56,800.00
Other							
	Total Personal Property		$11,725.00		**Net Worth**		$ 27,295.00
	Total Assets		$84,095.00		**Total Liabilities and Net Worth**		$ 84,095.00

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Balance Sheet – Major Headings

- Assets:
- Total Liquid Assets
- Total Investments
- Total Real Property
- Total Personal Property

- Total Assets

- Liabilities and Net Worth
- Total Current Liabilities
- Total Long-term Liabilities
- Total Liabilities
- Net Worth

- Total Liabilities and Net Worth

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Net Worth

- Assets: The fair market value of what you own
- Liabilities:
  - Current – Amount you owe that is due within one year
  - Long-term – Amount you owe that is due more than one year from date

Net Worth: Assets – Liabilities = Net Worth

What is Fair Market Value?

What you can sell an asset for, that is the Net Realizable Value

Amount you can buy the asset for, the Replacement Cost

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Solvency

- You are Solvent when your Net Worth is positive
- You are Insolvent when your Net Worth is Negative

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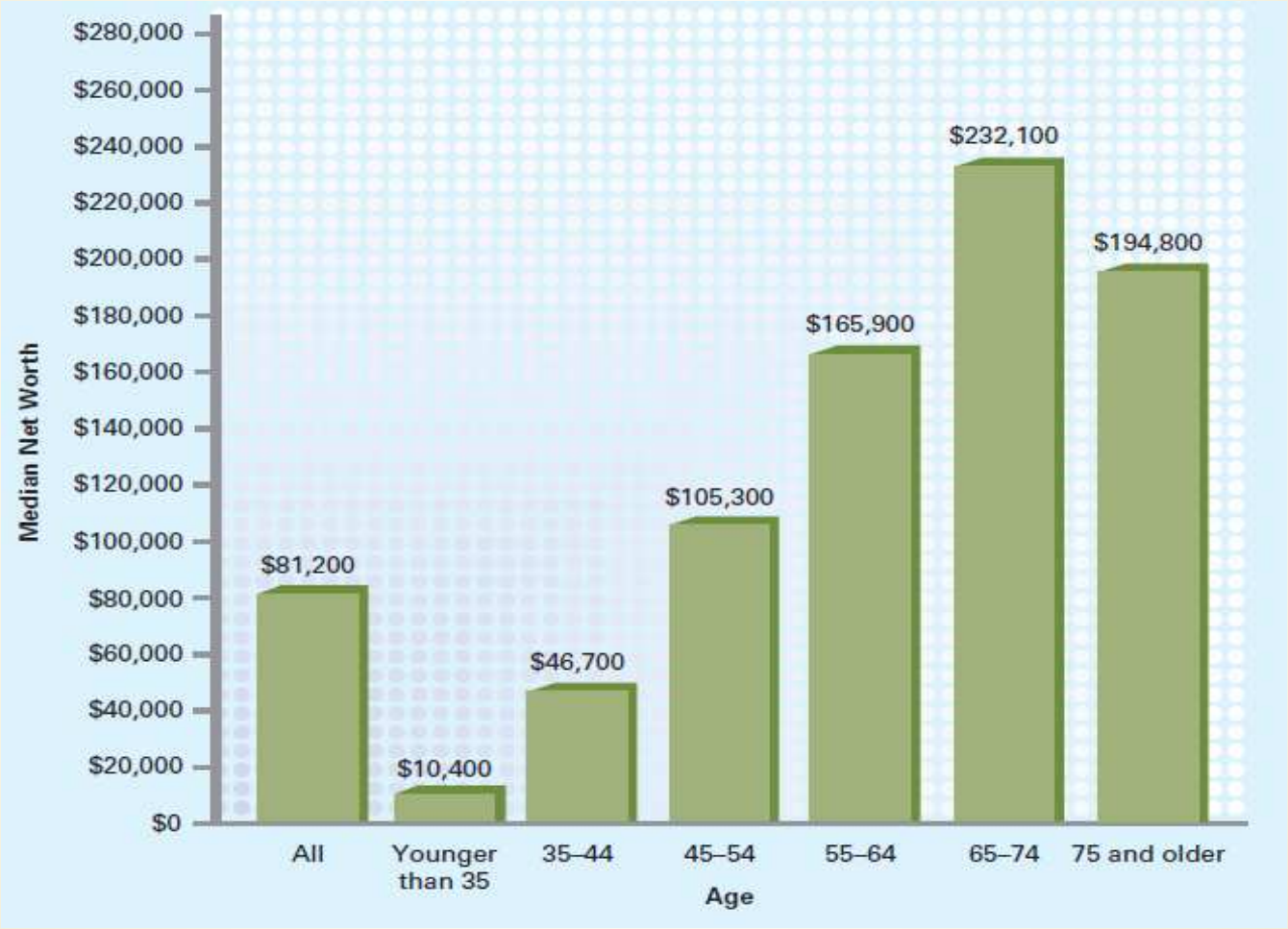
There is hope for yet!



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Income Statement
What you Earn and Where it Goes

- Personal Income Statements are prepared on the Cash Basis
- A method of preparing financial statements in which only transactions involving actual cash receipts or actual cash outlays are recorded.
- Cash Surplus is an excess amount of income over expenses that results in *increased* net worth.
- Income is Earnings received as wages, salaries, bonuses, commissions, interest and dividends, or proceeds from the sale of assets.
- Expenses are Money spent on living costs and to pay taxes, purchase assets, or repay debt.

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Income Statement – Major Headings

Worksheet 2.2

- Income:
- Wages and Salaries
- Self-employed income
- Bonuses and Commissions
- Investment income
- Pensions
- Other income

- Total Income

- Expenses:
- Housing and Utilities
- Food
- Transportation
- Medical
- Clothing and Personal Care
- Insurance and Taxes
- Appliances, furniture
- Recreation
- Other
- Total Expenses

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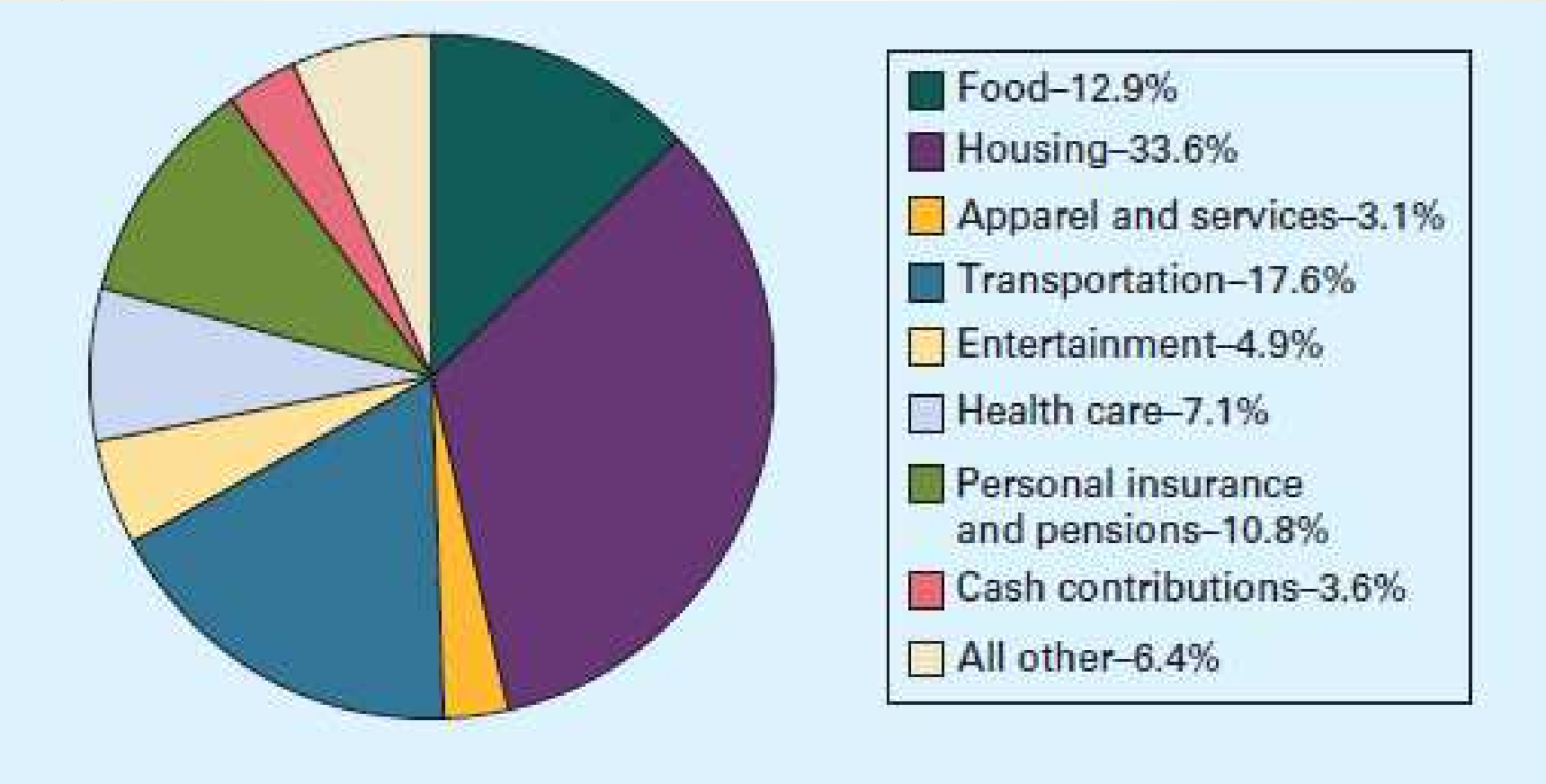
How We Spend Our Income



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Balance Sheet Ratios

Solvency Ratio Total Net Worth divided by Total Assets

Solvency ratio measures how much cushion you have before insolvency

If you move from a Solvency ratio of 40 to a ratio of 30, Good or Bad?

Liquidity Ratio Total Liquid Assets divided by Total Current debt (liabilities)

Liquid assets include Cash, Savings Accounts, Money Market accounts, and Certificates of deposit.

Liquidity ratio shows how long you could continue to pay current debts with existing liquid assets

If you liquidity ratio moves from 15 to 30, Good or Bad?

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Balance Sheet/Income Statement Ratios

- Savings ratio Relates cash surplus from Balance Sheet to net income from the Income Statement.
  - Savings ratio = Cash surplus divided by Net Income
  - If Savings ratio moves from 15 to 20, Good or Bad?

Debt Service Ratio provides a measure of the ability to pay debts promptly.

Debt Service ratio = Total monthly loan payments divided by monthly gross income

If Debt Service ratio moves from 15 to 30, Good or Bad?

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Budgets

- Cash budget reports the forecasted or estimated cash receipts and the forecasted or estimated cash expenses for the year. By reporting the cash budget by month, you can identify the month that you may have a problem such as short of cash.
- By comparing the actual cash receipts and expenses to the budget, you can control your spending. The difference is called a variance. If actual is greater than budgeted, you have a positive variance; otherwise, a negative variance.

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Handling a budget Deficit

- Liquidate enough savings and investments or borrow enough to meet the total budget shortfall for the year
- Cut low-priority expenses from budget
- Increase Income

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Time Value of Money

- A dollar today is worth more than a dollar received in the future. Relies on Compounding which is when interest earned each year is left in an account and becomes part of the balance on which interest is earned in subsequent years.
- Future Value The value to which an amount today will grow if it earns a specific rate of interest over a given period.
- Example: What will $1,000 amount to in two years if earns 10%?
- $1,000 * 1.1 * 1.1 = $1,210; Table of Future Values in Appendix A, gives a factor of 1.21 for 10% over 2 years.

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Future Value of an Annuity

- Annuity: A fixed sum of money that occurs annually
- Example: What will at the end of year 3 if you invest $1,000 now and $1,000 at beginning of next 2 years, assuming a 10% return?
- Factor for future value of annuity, at 10% for three years from Appendix B, is 3.310 = 1+[1*(1.1)^1]+[1*(1.1)^2]
- Annuity of $1,000 per year, 3 years, 10% = $1,000 * 3.310 = $3,310

- If you want to build an account to $3,310 in three years, what amount will you have to save if you earn 10%?
- Future value divided by factor (3 years, 10%) = $3,310/3.310 = $1,000.

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Rule of 72

- Number of years to double money = 72 divided by annual compound interest rate
- Example: Have $1,000, how long to double money if earn 10%
- 72 / 10 = 7.2 years

- Check: Future Value factor, 10%, 7.2 years = (1.1)^7.2 = 1.986 times $1,000 = $1,986

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Present Value

- Present Value: The value today of an amount to be received in the future. It is the amount that would have to be invested today at a given rate over a specified time period to accumulate the future amount.
- Example: Present value of $1,210, to be received in 2 years, at 10% return = $1,210 * [1/(1.1)^2 = $1,210 * 0.826 = $1,000
- Stated alternatively, PV = FV times PV Factor from Appendix C
- For an annuity, annual withdrawal = PV divided PV annuity factor, Appendix D

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Using Financial Statements and Budgets
Chapter 2

How Will This Affect Me?
Recent polls show that 57 percent of households have no budget, and 50 percent of Americans have less than one month of savings set aside for emergencies.* These are scary numbers . . . and this chapter shows what you can do to avoid being part of these alarming statistics.
Everyone knows that it's hard to get where you need to go if you don't know where you are. Financial goals describe your destination, and financial statements and budgets are the tools that help you determine exactly where you are in the journey. This chapter helps you define your financial goals and explains how to gauge your progress carefully over time.

Hopefully most of your students have had a semester of financial accounting. If so, while this chapter will be a review for them, they may need help understanding the differences between cash and accrual accounting. The chapter deals with cash accounting; the previous accounting course dealt with accrual accounting. If they have not had an accounting course, the students may have a hard time. If this material is new to them, it will be helpful if you go over worksheets (2.1 and 2.2) and then discuss the Financial Planning Exercises 3 (preparing a balance sheet) and 4 (preparing an income statement).

Learning Goals

LG1 Understand the relationship between financial plans and statements.

The statement above "it's hard to get where you need to go if you don't know where you are" is very true. The financial statements help you to understand where you are. If not consistent with your financial goal, you know you need to make some changes. To get a feel for where your students are in their ability to account for their financial transactions, ask the students if they have a checking account. Then ask them if they know the balance of that account. Exhibit 2.1 presents the impact of the financial statements on the financial plan. The statements give feedback to the plan.

LG2 Prepare a personal balance sheet.

The Balance Sheet computes the net worth as of a given date. By comparing the current balance sheet with the previous one from a year ago, you can see if you are moving toward your goal, or not. While liquid assets and investments may look the same, their purpose is very different. The liquid assets are available to spend or pay off debt, while the investments are for the long term. Recall that here we are discussing personal balance sheet. Therefore, the concept of depreciation is not the same as with generally accepted accounting principles (GAAP). With GAAP, depreciation is the allocation of a past cost over its useful life. With a personal balance

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sheet, depreciation is a decline in value – the assets are stated at their market value. Accordingly it is common for personal property to decline in value and real property to increase in value – though it is not guaranteed.

Liabilities are amounts owed to others. The classification as current [due within one year] and long-term is important. The current liabilities have to be paid in the short run, while long-term liabilities may be paid in the future or be paid with a monthly payment – which is a current liability. Worksheet 2.1 gives a format for a personal balance sheet—a fill-in-the-blanks approach that is useful for financial planning. This is followed with an example for Susan and Meghan Kane.

Exhibit 2.2 gives the student hope that in the future they will have a net worth.

LG3 Generate a personal income and expense statement.

While the balance sheet reports financial position as of a given day, the income statement covers a stated period, typically a month or year. The Financial Planning Exercises Number 5 should lead the students to consider what income is. The exercise asks the question is income gross pay or net pay. If you take the position that it is net pay, you are saying that you have no control over the payroll deductions. But you can control at least some of them and your actions should be consistent with your financial plan. You decide how many exemptions to claim for income taxes. You may have some choice as to what health insurance you select, what life insurance to select, or perhaps other benefits such as child care or additional health benefits.

Worksheet 2.2 lists the typical income and expenses items. The example for Susan and Meghan Kane gives the students an example of an income statement.

LG4 Develop a good record-keeping system and use ratios to evaluate personal financial statements.

Without records, you are flying blind. It like the person who says they can spend money as long as they have a check in their checkbook. Records give you a way to prepare financial reports which allow you to evaluate where you are on your financial plan. There is inexpensive software that will help you keep records, but you still have to record the transactions in order to have data for your financial statements.

With financial statements you may use ratio analysis to better understand how you are doing. Exhibit 2.5 gives a list of useful ratios. It will be useful to do some sensitivity analysis, that is, ask the students is it good or bad to move from a solvency ratio of 35% to 50%; liquidity ratio from 13% to 8%; and so on. This will help student understand the information in the ratio.

LG5 Construct a cash budget and use it to monitor and control spending.

The income statement reports the cash surplus or deficit for the period. But is the surplus of $2,000 good or not. You need something to compare it to. Frequently you compare to the previous period. While that is better than no comparison, comparing to your planned surplus is better. Your planned surplus is the bottom line of your budget. The budget is a statement in dollars of your planned income and expenses for the period, typically month or year. By comparing the current expenses with budgeted expenses, you create a budget variance. That variance tells you if you need to hold the course or change your direction. The actual income or expense compared to the budgeted amount gives you the ability to monitor and control your expenses.

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Worksheet 2.3 gives a common format for a cash budget, your planned expenditures for the year. The cash budget for Susan and Meghan Kane is an example. Worksheet 2.4 gives an example of comparing actual to budget and the resulting variance.

LG6 Apply time value of money concepts to put a monetary value on financial goals.

Financial plans are concerned with what future amounts you will need to be able to provide for your desired lifestyle at that time. Since the time is in the future, typically you need to apply the concept called the **time value of money**, the idea that a dollar today is worth more than a dollar received or spent in the future. Hopefully your students have been exposed to this concept in previous courses. If not, use short time periods [3 or 5 years] to demonstrate the concept. Perhaps use financing of a car as an example: You can pay $20,000 today or $400 per month for 5 years. With a 6% annual rate, the present value of an annuity of $400 per month, for 60 months, at .06/12 monthly rate, is $20,690. If you are OK with a 6% rate, pay cash.

The book discusses using a financial calculator. You could discuss spreadsheets financial functions such as PV, DCF, FV, or IRR. It depends upon the culture of your program whether you use calculators or spreadsheets. The Rule of 72 is very useful for quick comparisons. Discuss it.

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Financial Facts or Fantasies?

These may be used as "teasers" to get the students on the right page with you. Also, they may be used as quizzes after you covered the material or as "pre-test questions" to get their attention.

• Whereas the balance sheet summarizes your financial condition at a given point in time, the income and expense statement reports on your financial performance over time.

Fact: A balance sheet is like a photograph of your financial condition (covering just one day out of the year), while an income and expense statement is like a motion picture (covering the full year or some other time period).

• Because financial statements are used to record actual results, they're really not that important in personal financial planning.

Fantasy: Personal financial statements let you know where you stand financially. As such, they not only help you set up realistic financial plans and strategies but also provide a system for monitoring the amount of progress you're making toward the financial goals you've set.

• A leased car should be listed as an asset on your personal balance sheet.

Fantasy: You are only "using" the leased car and do not own it. Consequently, it should not be included as an asset on the balance sheet.

• Only the principal portion of a loan should be recorded on the liability side of a balance sheet.

Fact: The principal portion of a loan represents the unpaid balance and is the amount of money you owe. In contrast, interest is a charge that will be levied over time for the use of the money.

• Generating a cash surplus is desirable, because it adds to your net worth.

Fact: You can only increase your net worth by generating a cash surplus, someone giving you additional assets, or through increases in market values. The only one of the three you control is generating cash surplus.

• When evaluating your income and expenses statement, primary attention should be given to the top line: income received.

Fantasy: If you focus on only income and ignore expenses, you will quickly find yourself with a cash deficit and your net worth will decrease. Expenses are equally important and must be controlled.

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Financial Facts or Fantasies?

These may be used as a quiz or as a pre-test to get the students interested.

1. True False Whereas the balance sheet summarizes your financial condition at a given point in time, the income and expense statement reports on your financial performance over time.
2. True False Because financial statements are used to record actual results, they're really not that important in personal financial planning.
3. True False A leased car should be listed as an asset on your personal balance sheet.
4. True False Only the principal portion of a loan should be recorded on the liability side of a balance sheet.
5. True False Generating a cash surplus is desirable, because it adds to your net worth.
6. True False When evaluating your income and expenses statement, primary attention should be given to the top line: income received.

Answers: 1. True 2. False 3. False 4. True 5. True 6. False

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YOU CAN DO IT NOW

The "You Can Do It Now" cases may be assigned to the students as short cases or problems. They will help make the topic more real or relevant to the students. In most cases, it will only take about ten minutes to do, that is, until the student starts looking around at the web site. But they will learn by doing so.

Track Your Expenses

It's easy for spending to become so automatic that we're not aware we're doing it. So where does your money go? The only way to find out is to keep track of it. Writing down what you spend in a paper journal or using an app like Expensify (www.expensify.com) is simple and will make you more aware of where your money goes. Knowing where you are will probably make you feel better too - so **do it now**.

Save Automatically

We all know we should save regularly. One way to create a savings "habit" is to literally make it automatic.

Open a savings account apart from your checking account. This will separate your savings from what you have available to spend. And then set up an *automatic* deposit to your savings account each month. This sets your "habit." You can **do it now**.

Financial Impact of Personal Choices

Read and think about the choices being made. Do you agree or not? Ask the students to discuss the choices being made.

No Budget, No Plan: Sean Bought a Boat!

Sean is 28 and has a good job as a sales rep. He's always found budgeting boring and has been intending to start a financial plan for years.

Recently Sean went out with some friends on a rented boat to fish. He had a great time and saw a boat sale on his way home. Before he knew it, the salesman convinced Sean that the deal was just too good to pass up. So Sean bought a $10,000 boat and financed 80 percent of the cost for the next 5 years. Sean now finds himself relying more on his credit card to get by each month.

What if Sean had kept track of his money, used a budget, and had a set of financial goals? Knowing where his money went and having a financial plan would have increased the chance that Sean would make more deliberate, informed financial decisions.

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Solutions to "Test Yourself" Questions

2-1 What are the two types of personal financial statements? What is a budget, and how does it differ from personal financial statements? What role do these reports play in a financial plan?

Personal financial statements provide important information needed in the personal financial planning process. The balance sheet describes your financial condition [that is what assets and liabilities you have] at one point in time. The income and expense statement measures financial performance [cash surplus or deficit] over a given time period typically monthly or annually. Budgets help you plan your future spending. The budget is a statement of the future income or expenses that will result from your financial plan. By comparing the actual income and expenses to the budget you can see when your plan needs to be modified. Together these statements give you information needed for your financial planning process.

2-2 Describe the balance sheet, its components, and how you would use it in personal financial planning. Differentiate between investments and real and personal property.

Th*e balance sheet* summarizes your financial position by showing your assets (what you own listed at fair market value), your liabilities (what you owe), and your net worth (the difference between assets and liabilities) at a given point in time. With a balance sheet, you know whether your assets are greater than your liabilities, and by comparing balance sheets for different time periods, you can see whether your net worth is growing. *Investments* are intangible assets that have market value [such as stock] and you hold in hpes of future increases in value and future income. *Real property* is an asset that is affixed to the ground, example is a house. *Personal property* is tangible property that is not real property, example is a car or furniture.

2-3 What is the balance sheet equation? Explain when a family may be viewed as technically insolvent.

The *balance sheet equation* is:

Net Worth = Total Assets - Total Liabilities

A family is *technically insolvent* when their net worth is less than zero. This indicates that the amount of their total liabilities is greater than the fair market value of their total assets.

2-4 Explain two ways in which net worth could increase (or decrease) from one period to the next.

There are basically two ways to achieve an *increase in net worth*. First, one could prepare a budget for the pending period to specifically provide for an increase in net worth by acquiring more assets and/or paying down debts. This is accomplished by planning and requires strict control of income and expenses. A second approach would be to forecast expected increases in the market value of certain assets—primarily investment and tangible property assets. If the market value of the assets increased as expected and liabilities remained constant or decreased, an increase in net worth would result. (Note: Decreases in net worth would result from the opposite strategies/occurrences.) Of course that is also the old fashion way, you inherit wealth.

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2-5 What is an income and expense statement? What role does it serve in personal financial planning?

The *income and expense statement* captures the result of financial activities that you hoped would increase your wealth summarized for a month or a year. In personal financial planning, the statement permits comparison of actual results to the budgeted values to help you evaluate your financial plan.

2-6 Explain what cash basis means in this statement: "An income and expense statement should be prepared on a cash basis." How and where are credit purchases shown when statements are prepared on a cash basis?

The cash basis only records income that is received in cash or expenses that are paid in cash during the period. It ignores any amount that you are due [receivables] or that you will have to pay in the future [liabilities]. Payments on liabilities should be divided into payment of interest and payments on principle, but both are listed as expenses on a cash statement. Obviously the cash statement does not give a complete picture of a person income or expenses, but since most individuals do not have receivables and their liabilities are managed with monthly payments, the cash statement gives good information for financial planning.

2-7 Distinguish between fixed and variable expenses, and give examples of each.

Fixed expenses are contractual, predetermined expenses that are made each period, such as rent, mortgage and loan payments, or insurance premiums. *Variable* expenses change each period. These include food, utilities, charge card bills, and entertainment.

2-8 Is it possible to have a cash deficit on an income and expense statement? If so, how?

Yes, a *cash deficit* appears on an cash basis income and expense statement whenever the period's expenses exceed income. Deficit spending is made possible by using up an asset, such as taking money out of savings, selling an asset such as an investment, or incurring more debt, such as charging a purchase on a credit card.

2-9 How can accurate records and control procedures be used to ensure the effectiveness of the personal financial planning process?

Before you can set realistic goals, develop your financial plans, or effectively manage your money, you must take stock of your current financial situation. Without accurate records, you do not have the needed information to make your financial decisions.

2-10 Describe some of the areas or items you would consider when evaluating your balance sheet and income and expense statement. Cite several ratios that could help in this effort.

Ratios are used to relate items from the financial statements. These ratios provide useful information for specific decisions. From the Balance sheet:
Current Ratio: Current Assets divided by Current Liabilities, useful for short term credit decisions

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Solvency ratio: Total net worth divided by total assets; measures the degree of exposure to insolvency

Liquidity ratio: Total liquid assets divided by total current debts; measures the ability to pay current debts.

From the Income Statement:
Savings ratio: Cash surplus divided by income after taxes, indicates the portion of income you chose to save

Debt service ratio: Total monthly loan payments divided by Monthly gross (before tax) income, provides a measure of the ability to pay debts promptly

Return on Equity: Cash Surplus (a measure of net income) divided by New Worth, provides a measure of how well you managed your wealth.

2-11 Describe the cash budget and its three parts. How does a budget deficit differ from a budget surplus?

A *cash budget* is a summary of estimated cash income and cash expenses for a specific time period, typically a year. The three parts of the cash budget include: the *income* section where all expected income is listed; the *expense* section where expected expenses are listed by category; and the surplus or deficit section where the cash surplus or deficit is determined both on a month-by-month basis and on a cumulative basis throughout the year. A *budget deficit* occurs when the planned expenses for a period exceed the anticipated income in that same period. A *budget surplus* occurs when the income for the period exceeds its planned expenses.

2-12 The Gonzales family has prepared their annual cash budget for 2016. They have divided it into 12 monthly budgets. Although only 1 monthly budget balances, they have managed to balance the overall budget for the year. What remedies are available to the Gonzales family for meeting the monthly budget deficits?

Monthly deficits may be handled by shifting expenses to a later month or income to an earlier month. If that is not possible, the Gonzales family may withdraw an amount from savings or borrow a short-term loan to get the months in balance. Another alternative is to increase income perhaps with a second job or move to a higher paying job.

2-13 Why is it important to analyze actual budget surpluses or deficits at the end of each month?

By examining end-of-month budget balances, and the associated surpluses or deficits for all accounts, a person can initiate any required corrective actions to assure a balanced budget for the year. Surpluses are not problematic. Deficits normally require spending adjustments during subsequent months to bring the budget into balance by year end.

2-14 Why is it important to use time value of money concepts in setting personal financial goals?

A dollar today and a dollar in the future will be able to purchase different amounts of goods and services, because if you have a dollar today, you can invest it and it will grow to more than a dollar in the future. At the same time, inflation works against the dollar, because rising prices erode its

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purchasing power. *Time value of money* concepts help us quantify these changes in dollar values so that we can plan the amount of money needed at certain points in time in order to fulfill our personal financial goals.

2-15 What is compounding? Explain the rule of 72.

Interest is earned over a given period of time. When interest is compounded, this given period of time is broken into segments, such as months. Interest is then calculated one segment at a time, with the interest earned in one segment added back to become part of the principal for the next time segment. Thus, in *compounding*, your money earns interest on interest.
The *rule of 72* is a quick way to approximate how long it will take for an investment to double in value. Divide 72 by the percentage rate you are earning on your investment, and the answer will be approximately how many years it will take for your money to double. For example, if your investment is earning 8%, divide 72 by 8 to see that in approximately 9 years your money will double.

2-16 When might you use future value? Present value? Give specific examples.

Future value calculations show how much an amount will grow over a given time period. Future value is used to evaluate investments and to determine how much to save each year to accumulate a given future amount, such as the down payment on a house or for a child's college education. *Present value* concepts, the value today of an amount that will be received in the future, help you calculate how much a future cash receipt will be worth today, analyze investments, and determine loan payments.

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Solutions to Financial Planning Exercises

1. **Preparing Financial Statements: Chad Livingston is preparing his balance sheet and income and expense statement for the year ending June 30, 2016. He is having difficulty classifying six items and asks for your help. Which, if any, of the following transactions are assets, liabilities, income, or expense items?**

a. Chad rents a house for $1,350 a month.

The monthly rent is a monthly expense. The payment will reduce an asset, Cash.

b. On June 21, 2016, Chad bought diamond earrings for his wife and charged them using his MasterCard. The earrings cost $900, but he hasn't yet received the bill.

The purchase will result in a new asset, personal property for $900. Since he purchase using a credit card, his current liabilities also increase by $900.

c. Chad borrowed $3,500 from his parents last fall, but so far, he has made no payments to them.

Since no loan payments were made during the period, a corresponding expense would not appear. Whether or not the "loan" is a real loan or a gift from the parents is a question of fact to be determined. If real loan, the balance sheet will list a liability of $3,500. If a gift, net worth will increase by the amount of cash received.

d. Chad makes monthly payments of $225 on an installment loan; about half of it is interest, and the balance is repayment of principal. He has 20 payments left, totaling $4,500.

The income statement will show an expense: payment of loan $225 per month times 12 months, a total for the year of $2,700. When a balance sheet is prepared, the loan balance will be reduced by half of the 225 per month which represent payment of principal.

e. Chad paid $3,800 in taxes during the year and is due a tax refund of $650, which he hasn't yet received.

The payment of taxes is an expense recorded as paid, typically monthly or when paycheck is received. The refund is not recorded on the income statement until it is received. The receivable is not recorded on a cash basis balance sheet.

f. Chad invested $2,300 in some common stock.

The cash asset goes down and the asset investment goes up. The investment will appear on the balance sheet.

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2. **Projecting Financial Statements: Put yourself 10 years into the future. Construct a fairly detailed and realistic balance sheet and income and expense statement reflecting what you would like to achieve by that time.**

   While everyone's financial statements will differ based on their own expectation of the future, each should have similar elements such as: assets like a home, automobiles and investments; liabilities like a mortgage, an auto loan, and consumer debt; and a positive net worth. The statement of income and expense should reflect income from a job or business, investment income, and expenses for items such as home repair and operation, debt payments, savings, taxes, and insurance.

3. Preparing Personal Balance Sheet: ***Use Worksheet 2.1.*** **Denise Fisher's banker has asked her to submit a personal balance sheet as of June 30, 2016, in support of an application for a $6,000 home improvement loan. She comes to you for help in preparing it. So far, she has made the following list of her assets and liabilities as of June 30, 2016:**

Cash on hand		**$ 70**
Balance in checking account		**180**
Balance in money market deposit account with Southwest Savings		**650**
Bills outstanding:		
Telephone	**$ 20**	
Electricity	**70**	
Charge account balance	**190**	
Visa	**180**	
MasterCard	**220**	
Taxes	**400**	
Insurance	**220**	**1,300**
Condo and property		**68,000**
Condo mortgage loan		**52,000**
Automobile: 2012 Honda Civic		**9,775**
Installment loan balances:		
Auto loans	**3,000**	
Furniture loan	**500**	**3,500**
Personal property:		
Furniture	**1,050**	
Clothing	**900**	**1,950**
Investments:		
U.S. government savings bonds	**500**	
Stock of True Lite Corp.	**3,000**	**3,500**

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From the data given, prepare Denise Fisher's balance sheet, dated June 30, 2016 (follow the balance sheet form shown in Worksheet 2.1). Then evaluate her balance sheet relative to the following factors: (a) solvency, (b) liquidity, and (c) equity in her dominant asset.

See following page for Worksheet 2.1 for Denise Fisher.

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Problem 3 -- Worksheet 2.1							
Balance Sheet							
Names(s) Denise Fisher				Date	30-Jun-16		
Assets				**Liabilities and Net Worth**			
Liquid Assets:				Current Libaiblities			
Cash on hand		$ 70.00		Utilities		$ 90.00	
Cash in checking		150.00		Rent			
Savings accounts				Insurance premiums		220.00	
				Taxes		400.00	
Money market funds and deposits		650.00		Medical/dental bills			
Certificates of deposit <1 yr to				Repair bills			
maturity							
	Total Liquid Assets		$ 870.00	Bank credit card balances		400.00	
				Department store credit			
Investments				card balances		190.00	
				Travel and entertainment			
Stocks		$ 3,000.00		card balances			
				Gas and other credit			
Bonds		500.00		balances			
Certificates of deposit <1 yr to				Bank line of credit balances			
maturity				Other current liabilities			
Mutual funds							
Real estate					**Total Current Liabilities**		$ 1,300.00
Retirement funds, IRA				Long-term Liabilities			
Other				Primary residence mortgage		$52,000.00	
	Total Investments		$ 3,500.00	Real estate investment			
Real Property				mortgage			
Primary residence		$68,000.00		Autos loans		3,000.00	
Second home				Applicance/furniture loans		500.00	
Other				Home improvement loans			
	Total Real Property		$68,000.00	Single-payment loans			
Personal Property				Education loans			
Autos		$ 9,775.00		Margin loans used to purchse securities			
Autos				Other long-term liabilities			
Recreational vehicles							
Household furnishings		1,050.00			**Total Long-Term Liabilities**		$ 55,500.00
Jewelry and artwork							
Other		900.00			**Total Liabilities**		$ 56,800.00
Other							
	Total Personal Property		$11,725.00		**Net Worth**		$ 27,295.00
		Total Assets	$84,095.00		**Total Liabilities and Net Worth**		$ 84,095.00

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3-a. Solvency Ratio: This term refers to having a positive net worth. The calculation for her solvency ratio is as follows:

$$\text{Solvency Ratio} = \frac{\text{Total Net Worth}}{\text{Total Assets}} = \frac{\$27,295}{\$84,095} = 32.46\%$$

This indicates that Denise could withstand about a 33% decline in the market value of her assets before she would be insolvent. Although this is not too low a value, some thought might be given to increasing her net worth.

3-b. *Liquidity:* A simple analysis of Denise's balance sheet reveals that she's *not very liquid.* In comparing current liquid assets ($870) with current bills outstanding ($1,300), it is obvious that she cannot cover her bills and is, in fact, $430 short (i.e., $1,300 current debt – $870 current assets). Her liquidity ratio is:

$$\text{Liquidity ratio} = \frac{\text{Liquid Assets}}{\text{Total Current Debts}} = \frac{\$\ 870}{\$1,300} = 66.92\%$$

This means she can cover only about 67% of her current debt with her liquid assets.

If we assume that her installment loan payments for the year are about $2,000 (half the auto loan balance and all of the furniture loan balance) and add them to the bills outstanding, the liquidity ratio at this level of liquid assets is:

$$\text{Liquidity ratio} = \frac{\text{Liquid assets}}{\text{Total Current Debts}} = \frac{\$\ 870}{\$3,300} = 29\%$$

This indicates that should her income be curtailed, she could cover only about 29% of her existing one-year debt obligations with her liquid assets—and this does *not* include her mortgage payment! This is clearly not a favorable liquidity position.

3-c. *Equity in her Dominant Asset:* Denise's dominant asset is her condo and property, which is currently valued at $68,000. Since the loan outstanding on this asset is $52,000, the equity is $16,000 (i.e., $68,000 – $52,000). This amount indicates about a 24% equity interest (i.e., $16,000/$68,000) in the market value of her real estate. This appears to be a favorable equity position.

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4. Preparing Income and Expense Statement: ***Use Worksheet 2.2.*** **Bill and Nancy Ballinger are about to construct their income and expense statement for the year ending December 31, 2016. They have put together the following income and expense information for 2016:**

Nancy's salary		**$47,000**
Reimbursement for travel expenses		**1,950**
Interest on:		
Savings account	**110**	
Bonds of Alpha Corporation	**70**	
Groceries	**4,150**	
Rent	**9,600**	
Utilities		**960**
Gas and auto expenses		**650**
Bill's tuition, books, and supplies		**3,300**
Books, magazines, and periodicals		**280**
Clothing and other miscellaneous expenses		**2,700**
Cost of photographic equipment purchased with charge card		**2,200**
Amount paid to date on photographic equipment		**1,600**
Nancy's travel expenses		**1,950**
Purchase of a used car (cost)		**9,750**
Outstanding loan balance on car		**7,300**
Purchase of bonds in Alpha Corporation		**4,900**

Using the information provided, prepare an income and expense statement for the Ballinger's for the year ending December 31, 2016 (follow the form shown in Worksheet 2.2).

See worksheet on following page.

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Problem 4 -- Worksheet 2.2						
Income and Expense Statement						
Name(s)		**Bill and Nancy Ballinger**				
For the		Year		Ending	31-Dec-16	
Income						
Wages and salaries			Name	Nancy		$ 47,000.00
			Name			
			Name			
Self-employment						
Bonuses and commissions						
Investment Income			Interest received			180.00
			Dividends received			
			Rents received			
			Sale of securities			
			Other			
Pensions and annuities						
Other income			Reimbursements for Travel Exp			1,950.00
			Total Income			$ 49,130.00
Expenses						
Housing	Rent/mortgage payment					$ 9,600.00
	(include insurance and taxes if applicable)					
	Repairs, maintenance, improvements					
Utilities	Gas, electric, water					960.00
	Phone					
	Cable TV and other					
Food	Groceries					4,150.00
	Dining out					
Transportation	Auto loan payments					2,450.00
	License plates, fees, etc					
	Gas, oil, repairs, tires, maintenance					650.00
Medical	Health, major medical disability insurance					
	(payroll deductions or not provided by employer)					
	Doctor, dentist, hospital, medicines					
Clothing	Clothes, shoes, and accessories					2,700.00
Insurance	Homewoner's (if not covered by mortgage)					
	Life (not provided by employer)					
	Auto					
Taxes	Income and Social security					
	Property (if not included in mortgage)					
Appliances, furniture and other major purchases:						
	Loan payments					600.00
	Purchases and repairs					
Personal care	Laundry, cosmetics, hair care					
Recreation and entertainment:		Vacations				
	Other recreation and entertainment					280.00
Other items	Bill's tuition, books and supplies					3,300.00
	Alapha Corp Bonds					4,900.00
	Travel Expenses					1,950.00
	Total Expenses					31,540.00
	Cash surplus (or deficit)					$ 17,590.00

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5. Preparing Cash Budget: Richard and Elizabeth Walker are preparing their 2017 cash budget. Help the Walkers reconcile the following differences, giving reasons to support your answers.

a. **Their only source of income is Richard's salary, which amounts to $5,000 a month before taxes. Elizabeth wants to show the $5,000 as their monthly income, whereas Richard argues that his take-home pay of $3,917 is the correct value to show.**

Like many questions it depends. If the taxes and other payroll deductions are considered out of their control, then only the take home pay would be listed. But, since they have some options in the computation of payroll deductions, the gross pay should be listed. Among the options is the number of exemptions for income tax withholding, the option to purchase health insurance for the non-working spouse through the employer or elsewhere, and perhaps other fringe benefits such as child care, flexible benefits, and other.

b. **Elizabeth wants to make a provision for fun money, an idea that Richard cannot understand. He asks, "Why do we need fun money when everything is provided for in the budget?"**

By having an allowance for "fun money," the Walkers have specifically set aside a certain portion of their income for a little self-indulgence. This will serve three basic purposes: (1) it will give a little financial independence to each member of the family; (2) to a certain extent it allows for a little impulse buying which might further the enjoyment of life. However, it allows for this luxury under a budget control and diminishes the possibility of it occurring with an allocation from another account; and (3) it generally promotes a higher quality of life. Thus, the inclusion of "fun money" is probably justified.

6. Identifying Missing Budget Items: Here is a portion of Chuck Schwartz's budget record for April 2016. Fill in the blanks in columns 5 and 6. Note the answers are included. They may be deleted if you wish to use in classroom.

Item (1)	Amount Budgeted (2)	Amount Spent (3)	Beginning Balance (4)	Monthly Surplus (Deficit) (5)	Cumulative Surplus (Deficit) (6)
Rent	$550	$575	$50	-$25	**$25**
Utilities	150	145	15	**5**	**20**
Food	510	475	-45	**35**	**-10**
Auto	75	95	-25	**-20**	**-45**
Recreation and Entertainment	100	110	-50	**-10**	**-60**

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7. ***Use Worksheet 2.3.*** **Prepare a record of your income and expenses for the last 30 days; then prepare a personal cash budget for the next three months. (Use the format in Worksheet 2.3, but fill out only three months and the Total column.) Use the cash budget to control and regulate your expenses during the next month. Discuss the impact of the budget on your spending behavior, as well as any differences between your expected and actual spending patterns.**

This question requires a personal response that will differ for each student. Therefore, a specific example has not been provided. However, the Critical Thinking cases below provide several examples of possible answers to this question; it is recommended that the cases be examined in conjunction with this question.

The question provides an effective means to involve the student in the budgeting process. Most students are somewhat amazed when they find out how they have actually been spending their money. Before assigning this question, it is interesting to ask the students to estimate how they actually spend their money. A comparison of their estimates with the actual spending records typically reflects the unconscious manner in which they may be spending. Most students will find that the use of a budget to control and regulate expenses allows them to make more meaningful and satisfying expenses.

PLEASE NOTE: Problems 8 through 10 deal with time value of money, and solutions using both the tables and the financial calculator will be presented. The factors are taken from the tables as follows: future value–Appendix A; future value annuity–Appendix B; present value–Appendix C; present value annuity–Appendix D. If using the financial calculator, set on *End Mode* and *1 Payment/Year*. The +/- indicates the key to change the sign of the entry, in these instances from positive to negative. This keystroke is required on some financial calculators in order to make the programmed equation work. Other calculators require that a "Compute" key be pressed to attain the answer.

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8. Calculating present and future values: Use future or present value techniques to solve the following problems.

a. Starting with $15,000, how much will you have in 10 years if you can earn 6 percent on your money? If you can earn only 4 percent?

FV	=	PV x FV factor $_{6\%,\ 10\ yrs.}$	15000	+/-	PV
	=	$15,000 x 1.791	6		I
	=	$26,865	10		N
			FV		$26,862.72
FV	=	PV x FV factor 4%, 10 yrs.	15000	+/-	PV
	=	$15,000 x 1.480	4		I
	=	$22,200	10		N
			FV		$22,203.66

b. If you inherited $45,000 today and invested all of it in a security that paid a 7 percent rate of return, how much would you have in 25 years?

FV	=	PV x FV factor $_{7\%,\ 25\ yrs.}$	45000	+/-	PV
	=	$45,000 x 5.427	7		I
	=	$244,215	25		N
			FV		$244,234.47

c. If the average new home costs $275,000 today, how much will it cost in 10 years if the price increases by 5 percent each year?

FV	=	PV x FV factor $_{5\%,\ 10\ yrs.}$	275000	+/-	PV
	=	$275,000 x 1.629	5		I
	=	$447,975	10		N
			FV		$447,946.02

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d. You think that in 15 years, it will cost $212,000 to provide your child with a 4-year college education. Will you have enough if you take $70,000 today and invest it for the next 15 years at 5 percent? If you start from scratch, how much will you have to save each year to have $212,000.
No, you will have $145,530, which is less than your $212,000 goal.

FV	=	PV x FV factor $_{5\%,\ 15\ yrs.}$	70000	+/-	PV
	=	$70,000 x 2.079	5		I
	=	$145,530	15		N
			FV		$145,524.97

You will need to deposit $10,587.30 at the end of each year for 15 years In order to reach the $212,000 goal.

PMT	=	FV ÷ FVA factor $_{4\%,\ 15\ yrs.}$	212000	+/-	FV
	=	$212,000 ÷ 20.024	4		I
	=	$10,587.30	15		N
			PMT		$10,587.51

e. If you can earn 4 percent, how much will you have to save each year if you want to retire in 35 years with $1 million?
You will need to invest $13,577.55 at the end of each year at a rate of 4% for the next 35 years in order to retire with $1 million.

PMT	=	FV ÷ FVA factor $_{4\%,\ 35\ yrs.}$	1000000	+/-	FV
	=	$1,000,000 ÷ 73.651	4		I
	=	$13,577.55	35		N
			PMT		$13,577.32

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f. You plan to have $750,000 in savings and investments when you retire at age 60. Assuming that you earn an average of 8 percent on this portfolio, what is the maximum annual withdrawal you can make over a 25-year period of retirement?

You will be able to withdraw $70,257.61 at the end of each year for 25 years if you retire with $750,000 invested at 8%.

PMT	=	PV ÷ PVA factor $_{8\%,\ 25\ yrs.}$	750000	+/-	PV
	=	$750,000 ÷ 10.675	8		I
	=	<u>$70,257.61</u>	25		N
			PMT		$65,927.99

9. Quantifying and Evaluating a Saving Goal: Over the past several years, Catherine Lee has been able to save regularly. As a result, she has $54,188 in savings and investments today. She wants to establish her own business in five years and feels she will need $100,000 to do so.

a. If she can earn 4 percent on her money, how much will her $54,188 in savings/investments be worth in five years? Will Catherine have the $100,000 she needs? If not, how much more money will she need?

If Catherine can earn 4% on her money, $54,188 will be worth about $65,947 in 5 years:

FV	=	PV x FV factor $_{4\%,\ 5\ yrs.}$	54188	+/-	PV
	=	$54,188 x 1.217	4		I
	=	<u>$65,946.80</u>	5		N
			FV		$65,927.99

No, she will fall short by about $34,053.

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b. Given your answer to part a, how much will Catherine have to save each year over the next five years to accumulate the additional money? Assume that she can earn interest at a rate of 4 percent.

b. Assuming that Catherine adds a payment to her savings at the end of each year for the next five years so that the fifth payment comes at the end of the time period, she would have to save $5,077.55 per year. This calculation is as follows:

FV	=	PMT x FVA factor $_{4\%,\ 5\ yrs.}$	34072	+/-	FV
PMT	=	FV ÷ FVA factor $_{4\%,5yrs.}$	4		I
	=	$34,053 ÷ 5.416	5		N
	=	$6,287.52	PMT		$6,290.62

c. If Catherine can afford to save only $4,000 a year, then given your answer to part a, will she have the $100,000 she needs to start her own business in five years?

If Catherine saves only $4,000 per year she would have an additional $21,664 for a total of $87,611 ($65,947 + $21,664) and will fall $12,389 short of her $100,000 goal.

FV	=	PMT x FVA factor $_{4\%,\ 5\ yrs.}$	4000	+/-	PMT
	=	$4,000 x 5.416	4		I
	=	$21,664	5		N
			FV		$21,665.29

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10. Funding a Retirement Goal: Chris Jones wishes to have $800,000 in a retirement fund 20 years from now. He can create the retirement fund by making a single lump-sum deposit today.
a. If he can earn 6 percent on his investments, how much must Chris deposit today to create the retirement fund? If he can earn only 4 percent on his investments? Compare and discuss the results of your calculations.

Note what a difference of 2% makes over the 20-year time period! You would have to initially invest about 46% more money to end up with the same future value [($364,800 – $249,600) ÷ $249,600].

PV	=	FV x PV factor $_{6\%,\ 20\ yrs.}$	800000	+/-	FV
	=	$800,000 x 0.312	6		I
	=	$249,600	20		N
			PV		$249,443.78

If Chris only earns 4%, he will need another $115,666 to meet his goal.

PV	=	FV x PV factor $_{4\%,\ 20\ yrs.}$	800000	+/-	FV
	=	$800,000 x 0.456	4		I
	=	$364,800	20		N
			PV		$365,109.56

b. If, upon retirement in 20 years, Chris plans to invest the $800,000 in a fund that earns 4 percent, what is the maximum annual withdrawal he can make over the following 15 years?

Chris can withdraw $71,955.39 at the end of every year for 15 years.

PV	=	PMT x PVA factor $_{4\%,\ 15\ yrs.}$	800000	+/-	PV
PMT	=	PV ÷ PVA factor $_{4\%,\ 15\ yrs.}$	4		I
	=	$800,000 ÷ 11.118	15		N
	=	$71,955.39	PMT		$71,952.88

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b. How much would Chris need to have on deposit at retirement to annually withdraw $35,000 over the 15 years if the retirement fund earns 4 percent?

To withdraw $35,000 at the end of every year for 15 years, Chris would need a retirement fund of $389,130.

PV	=	PMT x PVA factor $_{4\%,\ 5\ yrs.}$
	=	$35,000 x 11.118
	=	<u>$389,130</u>

35000	+/-	PMT
4		I
15		N
PV		$389,143.56

d. To achieve his annual withdrawal goal of $35,000 calculated in part c, how much more than the amount calculated in part a must Chris deposit today in an investment earning 4 percent annual interest?

Chris will not need to invest any additional funds because the original investment will meet his retirement needs.

11. Funding a College Goal: Dan Weaver wants to set up a fund to pay for his daughter's education. In order to pay her expenses, he will need $23,000 in four years, $24,300 in five years, $26,000 in six years, and $28,000 in seven years. If he can put money into a fund that pays 4 percent interest, what lump-sum payment must Dan place in the fund today to meet his college funding goals?

Dan needs $81,459.60 today to fund college.

PV	=	FV x PV factor $_{4\%,\ 4\ yrs.}$
	=	$23,000 x 0.855
	=	<u>$19,665</u>

PV	=	FV x PV factor $_{4\%,\ 5\ yrs.}$
	=	$24,300 x 0.822
	=	<u>$19,974.60</u>

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PV	=	FV x PV factor $_{4\%,\ 6\ yrs.}$
	=	$26,000 x 0.790
	=	<u>$20,540</u>

PV	=	FV x PV factor $_{4\%,\ 7\ yrs.}$
	=	$28,000 x 0.760
	=	<u>$21,280</u>

Add $19,665 + $19,974.60 + $20,540 + $21,280 = $81,459.60

Using a financial calculator, specifically a TI BAII+

CFO = 0
C01 = 0, F01 = 3
C02 = 23000, F02 = 1
C03 = 24300, F03 = 1
C04 = 26000, F04 = 1
C05 = 28000, F05 = 1
I = 4
CPT NPV = $81,459.21

12. Calculating a Future Value of an Investment: Jessica Wright has always been interested in stocks. She has decided to invest $2,000 once every year into an equity mutual fund that is expected to produce a return of 6 percent a year for the foreseeable future. Jessica is really curious how much money she can reasonably expect her investment to be worth in 20 years. What would you tell her?

It should be noted, that you are calculating this amount using an expected rate of return. Should the return be higher any given years, the value will be more. Should the return be lower any given years, the value will be less.

FV	=	PMT x FVA factor $_{6\%,\ 20\ yrs.}$
	=	$2,000 x 36.786
	=	<u>$73,572</u>

2000	+/-	PMT
6		I
20		N
FV		$73,571.18

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Solutions to Critical Thinking Cases

2.1 The Becker's Version of Financial Planning

Terry and Evelyn Becker are a married couple in their mid-20s. Terry has a good start as an electrical engineer and Evelyn works as a sales representative. Since their marriage four years ago, Terry and Evelyn have been living comfortably. Their income has exceeded their expenses, and they have accumulated an enviable net worth. This includes $10,000 that they have built up in savings and investments. Because their income has always been more than enough for them to have the lifestyle they desire, the Beckers have done no financial planning.

Evelyn has just learned that she's two months pregnant. She's concerned about how they'll make ends meet if she quits work after their child is born. Each time she and Terry discuss the matter, he tells her not to worry because "we've always managed to pay our bills on time." Evelyn can't understand his attitude because her income will be completely eliminated. To convince Evelyn that there's no need for concern, Terry points out that their expenses last year, but for the common stock purchase, were about equal to his take-home pay. With an anticipated promotion and an expected 10 percent pay raise, his income next year should exceed this amount. Terry also points out that they can reduce luxuries (trips, recreation, and entertainment) and can always draw down their savings or sell some of their stock if they get in a bind. When Evelyn asks about the long-run implications for their finances, Terry says there will be "no problems" because his boss has assured him that he has a bright future with the engineering firm. Terry also emphasizes that Evelyn can go back to work in a few years if necessary.

Despite Terry's arguments, Evelyn feels that they should carefully examine their financial condition in order to do some serious planning. She has gathered the following financial information for the year ending December 31, 2016:

Salaries	**Take-home Pay**	**Gross Salary**
Terry	*$52,500*	*$76,000*
Evelyn	*29,200*	*42,000*

Item	**Amount**
Food	*$ 5,902*
Clothing	*2,300*
Mortgage payments, including property taxes of $1,400	*11,028*
Travel and entertainment card balances	*2,000*
Gas, electric, water expenses	*1,990*
Household furnishings	*4,500*
Telephone	*640*
Auto loan balance	*4,650*
Common stock investments	*7,500*
Bank credit card balances	*675*
Federal income taxes	*22,472*
State income tax	*5,040*
Social security contributions	*9,027*
Credit card loan payments	*2,210*

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Cash on hand	*85*
2012 Nissan Sentra	*10,500*
Medical expenses (unreimbursed)	*600*
Homeowner's insurance premiums paid	*1,300*
Checking account balance	*485*
Auto insurance premiums paid	*1,600*
Transportation	*2,800*
Cable television	*680*
Estimated value of home	*185,000*
Trip to Europe	*5,000*
Recreation and entertainment	*4,000*
Auto loan payments	*2,150*
Money market account balance	*2,500*
Purchase of common stock	*7,500*
Addition to money market account	*500*
Mortgage on home	*148,000*

Critical Thinking Questions

1. **Using this information and Worksheets 2.1 and 2.2, construct the Becker's balance sheet and income and expense statement for the year ending December 31, 2016.**

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Critical Thinking 2-1 part 1							
Balance Sheet							
Names(s) Terry and Evelyn Becker				Date	31-Dec-16		
Assets				**Liabilities and Net Worth**			
Liquid Assets:				Current Libaiblities			
Cash on hand		$ 85.00		Utilities			
Cash in checking		485.00		Rent			
Savings accounts				Insurance premiums			
				Taxes			
Money market funds and deposits		2,500.00		Medical/dental bills			
Certificates of deposit <1 yr to				Repair bills			
maturity							
	Total Liquid Assets		$ 3,070.00	Bank credit card balances		675.00	
				Department store credit			
Investments				card balances			
				Travel and entertainment			
Stocks		$ 7,500.00		card balances		2,000.00	
				Gas and other credit			
Bonds				balances			
Certificates of deposit <1 yr to				Bank line of credit balances			
maturity				Other current liabilities			
Mutual funds							
Real estate					**Total Current Liabilities**		$ 2,675.00
Retirement funds, IRA				Long-term Liabilities			
Other				Primary residence mortgage		$148,000.00	
	Total Investments		$ 7,500.00	Real estate investment			
Real Property				mortgage			
Primary residence		$185,000.00		Autos loans		4,650.00	
Second home				Applicance/furniture loans			
Other				Home improvement loans			
	Total Real Property		$ 185,000.00	Single-payment loans			
Personal Property				Education loans			
Autos		$ 10,500.00		Margin loans used to purchse securities			
Autos				Other long-term liabilities			
Recreational vehicles							
Household furnishings		4,500.00			**Total Long-Term Liabilities**		$ 152,650.00
Jewelry and artwork							
Other					**Total Liabilities**		$ 155,325.00
Other							
	Total Personal Property		$ 15,000.00		**Net Worth**		$ 55,245.00
		Total Assets	$ 210,570.00		**Total Liabilities and Net Worth**		$ 210,570.00

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Critical Thinking 2-1, Part 1 -- Worksheet 2.2						
Income and Expense Statement						
Name(s)		**Terry and Evelyn Becker**				
For the		Year		Ending	31-Dec-16	
Income						
Wages and salaries			Name	Terry		$ 76,000.00
			Name	Evelyn		42,000.00
			Name			
Self-employment						
Bonuses and commissions						
Investment Income			Interest received			
			Dividends received			
			Rents received			
			Sale of securities			
			Other			
Pensions and annuities						
Other income			Reimbursements for Travel Exp			
			Total Income			$ 118,000.00
Expenses						
Housing	Rent/mortgage payment					$ 11,028.00
	(include insurance and taxes if applicable)					
	Repairs, maintenance, improvements					
Utilities	Gas, electric, water					1,990.00
	Phone					640.00
	Cable TV and other					680.00
Food	Groceries					5,902.00
	Dining out					
Transportation	Auto loan payments					2,150.00
	License plates, fees, etc					
	Gas, oil, repairs, tires, maintenance					2,800.00
Medical	Health, major medical disability insurance					
	(payroll deductions or not provided by employer)					
	Doctor, dentist, hospital, medicines					600.00
Clothing	Clothes, shoes, and accessories					2,300.00
Insurance	Homewoner's (if not covered by mortgage)					1,300.00
	Life (not provided by employer)					
	Auto					1,600.00
Taxes	Income and Social security					36,539.00
	Property (if not included in mortgage)					
Appliances, furniture and other major purchases:						
	Loan payments					
	Purchases and repairs					
Personal care	Laundry, cosmetics, hair care					
Recreation and entertainment:		Vacations				5,000.00
	Other recreation and entertainment					4,000.00
Other items	Credit card loan payments					2,210.00
	Purchase of common stock					7,500.00
	Addition to Money Market account					500.00
	Total Expenses					86,739.00
	Cash surplus (or deficit)					$ 31,261.00

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2. Comment on the Becker's financial condition regarding (a) solvency, (b) liquidity, (c) savings, and (d) ability to pay debts promptly. If the Becker's continue to manage their finances as described, what do you expect the long-run consequences to be? Discuss.

a. Solvency Ratio: This ratio shows the degree of exposure to insolvency or how much "cushion" you have as protection against insolvency. The calculation for her solvency ratio is as follows:

$$\text{Solvency Ratio} = \frac{\text{Total Net Worth}}{\text{Total Assets}} = \frac{\$55{,}245}{\$210{,}570} = 26.24\%$$

A solvency ratio of 26% is on the low side. In their assets decline in value by 26%, the Beckers would be insolvent. Not good.

b. Liquidity Ratio*:*

$$\text{Liquidity ratio} = \frac{\text{Liquid Assets}}{\text{Total Current Debts}} = \frac{\$\ 3{,}070}{\$\ 2{,}675} = 1.15$$

The liquidity ratio indicates the Becker's ability to pay current debts. A ratio of greater than 1 is acceptable, but higher would be better.

c. Savings

$$\text{Savings ratio} = \frac{\text{Cash Surplus}}{\text{Income after tax}} = \frac{\$\ 31{,}261}{\$\ 81{,}700} = 38.26\%$$

The savings ratio indicates what the Becker's are doing with their income. Saving 38% is excellent [average for American families is about 8%]. This rate will overshadow the previous lackluster ratios.

d. $$\text{Debt Service ratio} = \frac{\text{Monthly loan payments}}{\text{Monthly Gross Income}} = \frac{\$1{,}282}{\$9{,}833} = 13.04\%$$

The level of income is substantially covering their loan payments, thus assuming continued income, their debts are secured.

The Becker's income is sufficient to build a better Balance Sheet in the future so that their net worth should continue to grow. This is a two wage earner family. If one loses their job, that lost income will soon create problems since their current balance sheet does not have the assets to maintain their net worth for the future without the continuing income.

3. Critically evaluate the Becker's approach to financial planning. Point out any fallacies in Terry's arguments, and be sure to mention (a) implications for the long term, as well as (b) the potential impact of inflation in general and specifically on their net worth. What procedures should they use to get their financial house in order? Be sure to discuss the role that long- and short-term financial plans and budgets might play.

At this point, the key to their future is maintaining the two income family. Long term if both incomes continue, the Beckers will build their net worth. While inflation is a constant threat, the impact will be on their real

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property and large priced personal property. They have a car and a house, thus until those must be replaced, inflation will of less concerned to them. If inflation runs away, their jobs could be at risk and all bets are off for their future financial position. Preparing a budget will certainly help guide them to better understand where they are going to be at the end of the year.

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2.2 Brooke Stauffer Learns to Budget

Brooke Stauffer recently graduated from college and moved to Atlanta to take a job as a market research analyst. She was pleased to be financially independent and was sure that, with her $45,000 salary, she could cover her living expenses and have plenty of money left over to furnish her studio apartment and enjoy the wide variety of social and recreational activities available in Atlanta. She opened several department-store charge accounts and obtained a bank credit card. For a while, Brooke managed pretty well on her monthly take-home pay of $2,893, but by the end of 2016, she was having trouble fully paying all his credit card charges each month. Concerned that her spending had gotten out of control and that she was barely making it from paycheck to paycheck, she decided to list her expenses for the past calendar year and develop a budget. She hoped not only to reduce her credit card debt but also to begin a regular savings program.

Brooke prepared the following summary of expenses for 2016:

Item	Annual Expenditure
Rent	**$12,000**
Auto insurance	**1,855**
Auto loan payments	**3,840**
Auto expenses (gas, repairs, and fees)	**1,560**
Clothing	**3,200**
Installment loan for stereo	**540**
Personal care	**424**
Phone	**600**
Cable TV	**440**
Gas and electricity	**1,080**
Medical care	**120**
Dentist	**70**
Groceries	**2,500**
Dining out	**2,600**
Furniture purchases	**1,200**
Recreation and entertainment	**2,900**
Other expenses	**600**

After reviewing his 2016 expenses, Brooke made the following assumptions about her expenses for 2017:

1. All expenses will remain at the same levels, with these exceptions:
a. Auto insurance, auto expenses, gas and electricity, and groceries will increase 5 percent.
b. Clothing purchases will decrease to $2,250.
c. Phone and cable TV will increase $5 per month.
d. Furniture purchases will decrease to $660, most of which is for a new television.
e. She will take a one-week vacation to Colorado in July, at a cost of $2,100.

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2. All expenses will be budgeted in equal monthly installments except for the vacation and these items:
a. Auto insurance is paid in two installments due in June and December.
b. She plans to replace the brakes on her car in February, at a cost of $220.
c. Visits to the dentist will be made in March and September.

3. She will eliminate her bank credit card balance by making extra monthly payments of $75 during each of the first six months.
4. Regarding her income, Brooke has just received a small raise, so her take-home pay will be $3,200 per month.

Critical Thinking Question

1. **a. Prepare a preliminary cash budget for Brooke for the year ending December 31, 2016, using the format shown in Worksheet 2.3.**
   b. Compare Brooke's estimated expenses with his expected income and make recommendations that will help him balance her budget.

2. **Make any necessary adjustments to Brooke's estimated monthly expenses, and revise her annual cash budget for the year ending December 31, 2016, using Worksheet 2.3.**

3. **Analyze the budget and advise Brooke on her financial situation. Suggest some long-term, intermediate, and short-term financial goals for Brooke, and discuss some steps she can take to reach them.**

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Case 2.2, Problem 1a

Income and Expense Statement			
Name: Brooke Stauffer			
For the Year		Ending December 31, 2016	
Income		2016	2017
Salary	*Alex's take*-home pay of $2,893/mo in 2016 and $3,200/mo in 2017 .	$ 34,716	$ 38,400
Other income			
	(I) Total Income	$ 34,716	$ 38,400
Expenses			
Housing	Rent	$12,000	$12,000
	Repairs		
Utilities	Gas, electric, water	1,080	1,134
	Phone	600	660
	Cable TV and other	440	500
Food	Groceries	2,500	2,625
	Dining out	2,600	2,600
Transportation	Auto loan payments	3,840	3,840
	Auto related expenses	1,560	1,638
	Other transportation expenses		
Medical	Health-related insurance		
	Doctor, dentist, hospital, medicines	190	190
Clothing	Clothes, shoes, accessories	3,200	2,250
Insurance	Homeowner's		
	Life		
	Auto	1,855	1,948
Taxes	Income and social security		
	Property (if not included in mortgage)		
Appliances, furniture & other major purchases	Loan payments	540	540
	Purchases and repairs	1,200	660
Personal care	Laundry, cosmetics, hair care	424	424
Recreation & entertainment	Vacations		2,100
	Other recreation and entertainment	2,900	2,900
Other items	Misc.	600	600
	Credit card pmts: 6 mo.@$75/mo.	450	450
	Other expenses		
	(II) Total Expenses	$ 35,979	$ 37,059
	CASH SURPLUS (OR DEFICIT) [(I) – (II)]	$ (1,263)	$ 1,341

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Case 2.2, Problem 2—Worksheet 2.3 **ANNUAL CASH BUDGET BY MONTH**

Name(s) Brooke Stauffer

For **the Year ending** December 31, 2017

INCOME	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May**	**June**	**July**	**Aug.**	**Sept.**	**Oct.**	**Nov.**	**Dec.**	**Total**
Take-home pay	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	38,400
[1] Total Income	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	**38,400**
EXPENDITURES													
Rent	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	12,000
Gas & electricity	94	94	94	94	94	94	95	95	95	95	95	95	1,134
Phone	55	55	55	55	55	55	55	55	55	55	55	55	660
Cable TV	41	41	41	41	42	42	42	42	42	42	42	42	500
Groceries	218	218	218	219	219	219	219	219	219	219	219	219	2,625
Dining out	216	216	216	216	217	217	217	217	217	217	217	217	2600
Auto loan payments	320	320	320	320	320	320	320	320	320	320	320	320	3,840
Car expenses	129	220	128	129	129	129	129	129	129	129	129	129	1,638
Medical care, dentist	10	10	45	10	10	10	10	10	45	10	10	10	190
Clothing	187	187	187	187	187	187	188	188	188	188	188	188	2,250
Auto insurance	0	0	0	0	0	974	0	0	0	0	0	974	1,948
Installment loan for stereo	45	45	45	45	45	45	45	45	45	45	45	45	540
Personal care	35	35	35	35	35	35	35	35	36	36	36	36	424
Vacation	0	0	0	0	0	0	2,100	0	0	0	0	0	2,100
Other recreation & entertainment	241	241	241	241	242	242	242	242	242	242	242	242	2,900
Appliance purchases	55	55	55	55	55	55	55	55	55	55	55	55	660
Miscellaneous expenses	50	50	50	50	50	50	50	50	50	50	50	50	600
Credit card payments	75	75	75	75	75	75	0	0	0	0	0	0	450
Roth IRA contributions													
[2] Total Expenditures	2,771	2,862	2,805	2,772	2,775	3,749	4,802	2,702	2,738	2,703	2,703	3,677	37,059
MONTHLY CASH SURPLUSES (DEFICIT) [1-2]	429	338	395	428	425	(549)	(1,602)	498	462	497	497	(477)	

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CUMULATIVE CASH SURPLUS (DEFICIT)	**429**	**767**	**1,162**	**1,590**	**2,015**	**1,466**	**(136)**	**362**	**824**	**1,321**	**1,818**	**1,341**	**1,341**

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3. **Analyze the budget and advise Brooke on her financial situation. Suggest some long-term, intermediate, and short-term financial goals for Brooke, and discuss some steps she can take to reach them.**

Hanging by a thread summarize Brooke's current position. The income statement for the two years provide sufficient information to assess her current position. It would be a good exercise for the class to discuss what could be reduced. Most likely the dining out, vacation, and recreation expenses will be suggested. Perhaps she could start a saving account to accumulate funds for the vacation. If the money is not there, do not go.

Having the monthly budget and the income statement gives Brooke the info she needs to modify her spending decisions. Of course, if income could be increased, but that is most likely out of her control. Thus, the focus should be on expenses.

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Terms Found in the Chapter

annuity	A fixed sum of money that occurs annually.
assets	Items that one owns.
balance sheet	A financial statement that describes a person's financial position at a *given point* in time.
budget	A detailed financial report that looks *forward*, based on expected income and expenses.
budget control schedule	A summary that shows how actual income and expenses compare with the various budget categories and where variances (surpluses or deficits) exist.
budget variance	The difference between the budgeted and actual amount paid out or received.
cash basis	A method of preparing financial statements in which only transactions involving actual cash receipts or actual cash outlays are recorded.
cash deficit	An excess amount of expenses over income, resulting in insufficient funds as well as in *decreased* net worth.
cash surplus	An excess amount of income over expenses that results in *increased* net worth.
compounding	When interest earned each year is left in an account and becomes part of the balance (or principal) on which interest is earned in subsequent years.
current (short-term) liability	Any debt due within 1 year of the date of the balance sheet.
debt service ratio	Total monthly loan payments divided by monthly gross (before-tax) income; provides a measure of the ability to pay debts promptly.
discounting	The process of finding present value; the inverse of *compounding* to find future value.
equity	The actual ownership interest in a specific asset or group of assets.
expenses	Money spent on living costs and to pay taxes, purchase assets, or repay debt.
fair market value	The actual value of an asset, or the price for which it can reasonably be expected to sell in the open market.
future value	The value to which an amount today will grow if it earns a specific rate of interest over a given period.
fixed expenses	Contractual, predetermined expenses involving equal payments each period.

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income and expense statement	A financial statement that measures financial performance *over* time.
income	Earnings received as wages, salaries, bonuses, commissions, interest and dividends, or proceeds from the sale of assets.
insolvency	The financial state in which net worth is less than zero.
investments	Assets such as stocks, bonds, mutual funds, and real estate that are acquired in order to earn a return rather than provide a service.
liabilities	Debts such as credit card charges, loans, and mortgages.
liquid assets	Assets that are held in the form of cash or that can readily be converted to cash with little or no loss in value.
liquidity ratio	Total liquid assets divided by total current debts; measures the ability to pay current debts.
long-term liability	Any debt due 1 year or more from the date of the balance sheet.
net worth	An individual's or family's actual wealth; determined by subtracting total liabilities from total assets.
open account credit obligations	Current liabilities that represent the balances outstanding against established credit lines.
personal financial statement	Balance sheets and income and expense statements that serve as essential planning tools for developing and monitoring personal financial plans
present value	The value today of an amount to be received in the future; it's the amount that would have to be invested today at a given interest rate over a specified time period to accumulate the future amount.
personal property	Tangible assets that are movable and used in everyday life.
real property	Tangible assets that are immovable: land and anything fixed to it, such as a house.
rule of 72	A useful formula for estimating about how long it will take to double a sum at a given interest rate.
savings ratio	Cash surplus divided by net income (after tax);indicates relative amount of cash surplus achieved during a given period.
solvency ratio	Total net worth divided by total assets; measures the degree of exposure to insolvency.
timeline	A graphical presentation of cash flows.
time value of money	The concept that a dollar today is worth more than a dollar received in the future.

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variable expenses	Expenses involving payment amounts that change from one time period to the next.

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Chapter Outline

Learning Goals

I. Mapping Out Your Financial Future
- A. The Role of Financial Statements in Financial Planning
- B. Assessing Your Financial Situation, Plans, and Goals

Test Yourself

II. The Balance Sheet: How Much Are You Worth Today?
- A. Assets: The Things You Own
- B. Liabilities: The Money You Owe
- C. Net Worth: A Measure of Your Financial Worth
- D. Balance Sheet Format and Preparation
- E. A Balance Sheet for Simon and Meghan Kane

Test Yourself

III. The Income and Expense Statement: What We Earn and Where It Goes
- A. Income: Cash In
- B. Expenses: Cash Out
- C. Cash Surplus (or Deficit)
- D. Preparing the Income and Expense Statement
- E. An Income and Expense Statement for Simon and Meghan Kane

Test Yourself

IV. Using Your Personal Financial Statements
- A. Keeping Good Records
- B. Managing Your Financial Records
- C. Tracking Financial Progress: Ratio Analysis
- D. Balance Sheet Ratios
- E. Income and Expense Statement Ratios

Test Yourself

V. Cash In and Cash Out: Preparing and Using Budgets
- A. The Budgeting Process
- B. Forecasting Income
- C. Forecasting Expenses
- D. Finalizing the Cash Budget
- E. Dealing with Deficits
- F. A Cash Budget for Simon and Meghan Kane
- E. Using Your Budgets

Test Yourself

VI. The Time Value of Money: Putting a Dollar Value on Financial Goals
- A. Future Value

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B. Future Value of a Single Amount
C. Future Value of an Annuity
D. The Rule of 72
E. Present Value
    1. Present Value of a Single Amount
    2. Present Value of an Annuity
    3. Other Applications of Present Value
Test Yourself

Summary
Financial Planning Exercises
Applying Personal Finance
What's Your Condition?
Critical Thinking Cases
2.1 The Beckers' Version of Financial Planning
2.2 Brooke stauffer Learns to Budget
Money Online!

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