

STRANDS AND STANDARDS

SMALL BUSINESS MATH



Course Description

This course is designed to teach concepts, knowledge, and skills that will create the ability to solve mathematical problems in order to start a small business. This will enable students to advance from the idea of a small business to the steps and decision-making needed to be a successful business owner. This course can be counted for .5 CTE elective credits.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	32.01.00.00.001
Concurrent Enrollment Core Code	32.01.00.13.001
Prerequisite	None
Skill Certification Test Number	236
Skill Certification Cut Score	70%
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Business & Marketing (CTE/General)
Endorsement 2	Business & Marketing Essentials
Endorsement 3	

STRAND 1

Business Idea

Students will explore feasible and viable business options for their local community.

Standard 1

Explore business start-up ideas that could work in your local community, county, or region and determine where there is an opportunity in the local market.

- Use the Utah Department of workforce services website to explore the economic information for your community, county, or region.
- Use census or other community, county, or region data to determine potential areas of growth. i.e aging population may need more medical care. Birth rates and vital statistics can predict market trends.
- Changes and growth predictions from University studies such as the University of Utah's Kem C. Gardner Policy Institute.

Standard 2

Examine the various formats of today's start-up businesses and the costs associated with each. Include the following.

- **Retail business:** a business that buys goods from wholesalers, manufacturers, or other retailers and then sells to a consumer for a profit.
 - Rent or lease
- **e-Commerce:** a business model where the buying and selling of products or services take place on the internet
 - Online website costs
 - Shipping & Packaging cost
- **Subscription-based:** a business model in which customers pay a recurring fee (usually weekly, monthly, or annually) in exchange for a company's product or service.
 - Boxed subscriptions in make-up, clothing, food, and education
 - Manufacturing & Packaging cost.
- **Direct to the consumer:** a business that sells its products directly to consumers without going through an intermediary or retailer.
 - Avoiding the middle man in retail
 - Wholesalers/Manufacturers shipping to consumers directly. During the Covid19 pandemic meat suppliers pivoted to sell directly to families vs restaurants and grocery stores.
 - Helps maintain higher profit margins
- **Consumer to Consumer (C2C):** a business model where private individuals buy from and sell to each other, generally in an online environment. (eBay, Craigslist, Etsy, Facebook Marketplace)
 - Advertising or boosting through the site.
- **Consignment:** a business model in which a retailer (consignee) pays a seller (consignor) for merchandise after the item sells.
- **Business to Business (B2B):** a business model in which a business creates and sells products or services to another business.

Standard 3

Conduct market research to determine profit and sustainability potential in the industry. Viable businesses may create or fulfill an existing demand or need for a product or service, considering the risks of an over-saturated market and potential for profit.

- **Cost of Goods Sold (COGS):** The cost of producing the products that are sold by a company. It includes the input costs, materials, labor, and overhead costs associated with each unit of product sold.



- **Operating Profit Margins:** The amount of profit, usually expressed as a percentage, that a company makes per item sold.
 - Revenue minus the direct and operational expenses divided by the revenue, equals operating profit margin.
- **Distribution Channels:** The path a product takes to reach the final buyer. Distribution channels may include intermediaries such as wholesalers and retailers, or they may be direct to consumers.
 - Cost of transportation, air, sea, land, delivery
- Location availability
 - Analyze business locations for optimal foot traffic
 - Space requirements
 - Virtual, Office Space, Warehouse, Loading docks, Parking

Performance skills

- Analyze the cost of goods sold and profit margin for a specific business idea or industry
- Present on your start-up business idea that shares your research of the community, industries, and business needs.

STRAND 2

Funding your business

Students will identify and estimate the costs associated with funding a start-up business.

Standard 1

Illustrate and provide examples of the costs commonly associated with starting a small business

- **Location**
 - Local real estate marketing
 - Mall Kiosk

- Storage facilities
- Booth at a fair
- **Website**
 - Domain name registration
 - Graphic Designer or web design
 - Hosting fees
- Construction or building labor
 - Building new vs remodeling
- Product Inventory
- Equipment

Standard 2

Explain how the break-even point can be used to show how long it takes for a startup business to become profitable.

- **Fixed Cost:** Expenses that stay the same regardless of production output
 - $\text{Fixed Cost} = \text{Total Cost} - (\text{Variable Cost Per Unit} * \text{Units Produced})$
- **Variable Cost:** Expenses that vary depending on the number of units produced.
 - $\text{Total Variable Costs} = \text{Cost Per Unit} * \text{Total Number of Units}$.
 - Cost Per Unit may include direct labor cost, raw materials, shipping costs, manufacturing overhead, etc.
 - E-commerce software or online marketplace fee.
- **Sales Price:** Price charged per unit or service to a customer, client, or distributor.
- **Break-Even Point:** The point at which a company's total revenues equal total costs. The break-even point can be calculated in two ways: 1- determining how many units need to be sold, or 2- determining the number of sales in dollars needed to break even.
 - Calculating the Break Even Point in Units
 - $\text{Fixed costs} / (\text{sales price per unit} - \text{variable cost per unit})$
 - Calculating the Break Even Point in Sales Dollars
 - $\text{Fixed costs} / \text{contribution margin}$
 - $\text{Contribution margin} = (\text{sales price per unit} - \text{variable cost per unit}) / \text{sales price per unit}$

Standard 3

Identify the sources commonly used to raise funds for a business start-up.

- Describe Investors including the following types of investors.
 - **Debt financing:** Borrowing money that must be paid back to the creditor with interest. The creditor does not have any additional claim on the company.
 - **Equity financing:** Raising capital by selling shares of the company
 - **Venture capital:** A form of private equity that funds startups with growth potential.
 - **Crowdfunding:** A method of financing by raising capital from a large number of people, generally via the internet (Kickstarter, Indiegogo, GoFundMe)
- Explain business loans and the prerequisite to be approved.
 - SBA loans:
 - Loan payments
 - Interest rate: Dependent on credit score
 - **Amortization:** Paying off a debt by scheduled, regular payments. Each payment has a specified amount that goes toward the principal balance, as well as interest.
 - Business Credit Cards
- Explain that personal savings and/or loans from family and friends can have advantages and

disadvantages.

- Can cause family conflict or strain
- Should keep some savings and personal income until the business gains profitability.
- When self-funding, consider all household expenses until you may become profitable.
 - I.e. Mortgage, groceries, insurance car payments
- Start-up grants
 - Research local, state, and federal organizations that support small businesses
 - Explain the pros and cons of receiving grant money

Performance Skills (Choose two)

- Calculate when you would break even on your start-up cost
- Compare two different loan options for a small business by analyzing the amortization schedule.
- Compare an equity financing option versus a debt financing option at various points in a business life-cycle. I.e. 6 months, 1 year, and 3 years.

STRAND 3

Registering and protecting your business

Students will understand the various methods used to establish and protect a business, including the cost associated with those decisions.

Standard 1

Setting up and registering your business

- Business license requirements
 - City permits and zoning
 - State and Federal tax IDs
 - **Employee Identification Number (EIN):** A Federal Tax Identification number used to identify a business entity.
- Registering your business name

Standard 2

Filing patents, copyrights, and trademarks for your business

- **Patents:** An exclusive right granted to protect an invention.
- **Copyrights:** The legal rights given to an owner of a creative work that protects the work from unauthorized use. Copyright is automatically granted upon the creation of the creative work in a tangible form of expression.
- **Trademarks:** A symbol, word, or phrase that is legally registered or established by use as representing a company or product.

Standard 3

Types of business including cost, liability issues, tax benefits, and regulations.

Provide examples for each basic form of ownership:

- **Sole Proprietorship:** A sole proprietorship is the simplest and most common structure chosen to start a business. It is owned and run by one individual with no distinction between the business and you, the owner. The owner is entitled to all profits and is responsible for all your business's debts, losses, and liabilities.
- **Partnership:** an arrangement between two or more people to oversee business operations and share

its profits and liabilities.

- **Corporation:** is legally a separate and distinct entity from its owners. Corporations possess many of the same legal rights and responsibilities as individuals. It has limited liability, which means that its shareholders are not personally responsible for the company's debts. It may be created by an individual or a group of people with a shared goal.
 - **Limited Liability Company (LLC):** is a business structure in the U.S. that protects its owners from personal responsibility for its debts or liabilities. Limited liability companies are hybrid entities that combine the characteristics of a corporation with those of a partnership or sole proprietorship.
 - S-Corporation
 - C-Corporation
- Identify characteristics, advantages, disadvantages, and examples of a **Franchise Agreement:** A contract in which a franchisor grants a franchisee the right to operate the business
- **Non-Profit:** does not earn profits for their owners. All of the money earned by or donated to a non-profit organization is used in pursuing the organization's objectives and keeping it running.

Standard 4

Identify and compare common business insurance needs based on industry.

- Reasons to insure a business
 - **Liability:** Being responsible for something that happens in your business operations
 - Asset Protection
- Common types of business insurance
 - **Liability insurance:** General Liability Insurance protects your company if you cause injury or damage to others.
 - **Workers compensation:** A type of insurance that covers workers who are injured or become disabled as a result of their job.
 - **Accidental Death & Dismemberment (AD&D):** Insurance that covers fatal and nonfatal accidents involving dismemberment or loss of eyesight or hearing.
 - **Data Breach:** Helps protect your business from the impacts of a cyber attack or data breach.
 - **Commercial Property or Business renters insurance:** Protects the physical assets of a business
 - **Commercial Auto:** A type of auto insurance that covers vehicles used for business purposes.

Standard 5

Describe the measures used in securing a business.

- Explain the importance of security policies and safety precautions for a business.
- Describe internal and external theft in a retail business.
 - **Internal theft:** also known as employee theft, consists of any stealing, embezzlement, fraud, or taking of business property without permission.
 - **External theft:** often called shoplifting, break-ins, robberies, or other acts by persons with no connection to the business.
- Discuss methods of **loss prevention** as any actions taken to reduce the amount of theft, breakage, or wastage in a business. This includes poor record-keeping and inventory management.
- Identify essential checks and balances when accepting payments from customers
 - Cash handling policies and procedures
 - Counting down cash drawers before and after use.
 - Two people calculating deposits

Performance Skill (Choose 2)

- Compare insurance coverage required for many types of businesses, including retail, food/service, and recreation.
- Research the steps to registering your business on a local, state, and/or federal level
- Analyze the advantages and disadvantages of registering your business as each of the types of business ownership.

STRAND 4

Business Operations

Students will explore the cost associated with receiving payments, as well as hiring, training, and retaining employees.

Standard 1

Outline the decisions a business owner should consider before opening a business

- **Point of Sale (POS) system:** hardware or software that enables your business to make sales
 - **Forms of payment**
 - Cash, credit cards, digital wallet apps, and mobile payment apps
 - Fees for using each
 - Invoicing for B2B
 - Accounting Software
- Determine sales/service hours
 - Business Hours
 - Number of staff members
- Distribution or shipping cost
 - Cost added to purchase
 - Cost by weight, size, and quantity
 - Cost by speed
- Supply chain management
 - Delivery times
 - B2B vendors for manufacturing and packaging inputs

Standard 2

Discuss the human resource needs to begin a business

- Staffing a start-up
 - Essential positions to begin various forms of business.
 - Required skills and certifications
 - Job sites and Job descriptions
- **Hiring Paperwork:** New hire paperwork includes all the documents that organizations use to begin an employment offer, intake new team members
 - W-4, I-9
 - Background checks
- Employee policies and procedures.
 - Discuss the importance of employee standards and training

Standard 3

Discuss the employee cost associated with running a business.

- Determine labor cost by position
 - Wage should match the education, skill, and experience level of the employee
 - **W-2 employee:** paid through their employer's payroll and have their payroll taxes withheld throughout the year
 - **1099 employee:** an independent contractor, Freelancers, consultants, self-employed workers, and sole proprietors are common types of 1099 employees
 - Wage vs Salary
- Describe the difference between Net and Gross pay
 - **FICA cost:** US Federal Payroll Tax. FICA stands for Federal Insurance Contributions Act and is a combination of Social Security (6.2%) and Medicare (1.45%) taxes.
 - Unemployment tax

Standard 4

Hiring and training and retention cost

- Competitive wages
- **Benefit packages:** a collection of non-wage compensation that supplements an employee's salary
 - Retirement
 - Sick Day
 - Vacation time
 - Insurance
- Training cost

Performance Skill

- Analyze and interpret sales for staffing a business
- Compare POS systems and credit fees
- Calculate payroll for a two week pay period using a simple spreadsheet
- Compare local job opportunities pay, and benefits

STRAND 5

Business Budget

Students will understand the reasons that a business budget is needed and the categories, cost, and value of sales projections.

Standard 1

Determine the revenue for sales or services

- Determine the sources of **revenue** (the amount of money brought into the company, typically by selling goods, products, or services) for your business
 - Explore the product offerings for various business types.
 - Apparel
 - Food
 - Retail products
 - Explore service offerings for various types of service businesses
 - Tourism services
 - Medical services
 - Personal Care services
 - Consultant services
- Determine the markup of each of your products or services and set the prices to maintain a

predetermined profit margin.

- **Markup rate:** the difference between a product's selling price and cost as a percentage of the cost

Standard 2

Projecting expenses for your business:

- Investigate common expenses for your business
 - Marketing cost
 - Facility cost
 - Maintenance cost
 - Equipment cost
 - Buying New vs Used
 - Variable cost vs fixed cost

Standard 3

Determine prices of your products and services to reflect the intended profit margin.

- Read and understand a **profit and loss (P&L) statement:** a summary of the revenues, costs, and expenses incurred during a specified period, usually a quarter or fiscal year.
- Use the P&L statement to make business decisions and predictions about your future business opportunities
 - Use the P&L to make decisions about staffing, purchasing, growth, and cost-cutting decisions.

Performance Skill

- Build a business budget for a small business
- Analyze a Profit & Loss Statement from a similar small business

STRAND 6

Using Credit

Students will examine the use of credit in funding and operating a small business.

Standard 1

Credit Worthiness

- Discuss the purpose and role of credit.
- Explain the value of building and maintaining a healthy credit rating, including elements of **creditworthiness:** the likeliness that a person will not be able to pay back a loan. This is determined by a person's character, capacity, capital, collateral, and conditions.

Standard 2

Cost of Credit

- Explore various aspects of business credit card options, including
 - **interest rate:** Expressed as a percentage of the borrowed amount that the individual agrees to pay to be given a loan.
 - **annual fees:** a set amount paid annually on a credit card in addition to the agreed-upon interest rate. The range is between \$95 to \$500 a year.
 - **rewards programs:** a benefit to choosing one credit card over another.
 - Earning cash back, points, or miles on every purchase.
 - Redeem rewards for money-saving opportunities like travel bookings, statement credits, and online shopping credits.
 - Many rewards credit cards don't charge an annual fee.

- Describe why a business would use a credit card in the operations of a business.
 - Discuss **appropriate and inappropriate uses of credit cards** for business expenses.

Appropriate uses include

- Buying inventory
- Travel expenses
- To protect from identity theft
- Separating business credit and individual accounts
- Bankruptcy consequence to credit

Inappropriate use of a small business credit card

- Overspending
- Paying more for items than using a debit card or cash that is available
- Using a business credit card for personal use

Standard 3

Extending Credit

- Many industries offer credit and allow customers to pay after receiving products. B2B relationships often offer Net 30, discounts for payments to encourage paying sooner than later.

Performance Skill

Research business credit card offers and rewards programs from various sources

Examine the difference in the cost of a business purchase made using credit vs. cash

STRAND 7

Federal and Local Regulations

Students will be able to Identify and describe government agencies that regulate business:

Standard 1

Discuss the federal laws and agencies and how they impact on small businesses.

- OSHA** (Occupational Safety and Health Administration)
 - Applies to all businesses with more than 11 employees. Ensures a safe working environment.
- EEOC** (Equal Employment Opportunity Commission)
 - If you have 100 or more employees, or if you are a federal contractor with at least 50 employees and at least \$50,000 in government contracts, you are required to complete and submit an EEO-1 Report to the EEOC and the U.S. Department of Labor every year.
- FTC** (Federal Trade Commission)
 - Under the law, claims in advertisements must be truthful, cannot be deceptive or unfair, and must be evidence-based.
 - A business that averages less than \$1,000,000 in sales of human food plus the market value of human food that is manufactured or processed. Should
- HIPAA** (Health Insurance Portability and Accountability Act)
 - The HIPAA Privacy Rule for the first time creates national standards to protect individuals' medical records and other personal health information
- FERPA** (Family Educational Rights and Privacy Act)
 - Important for any educational business. The Family Educational Rights and Privacy Act (FERPA) is a Federal law that addresses parent rights regarding their student's education records and defines the conditions under which schools may share education records with third parties.
- FLSA** (Fair Labor Standards Act) establishes minimum wage, overtime pay, recordkeeping, and child

labor standards affecting full-time and part-time workers in the private sector and in Federal, State, and local governments.

- **ADA** (Americans with Disabilities Act) The ADA requires that small businesses remove architectural barriers in existing facilities when it is “readily achievable” to do so. Readily achievable means “easily accomplishable without much difficulty or expense.”

Standard 2

State Regulations and City Ordinances. Explore the sales licenses needed for the businesses included.

- Understand necessary licenses/permits to do business in a variety of industries, including at-home businesses in your local area
 - Sales licenses needed for door-to-door sales
 - Contractor license
 - Medical license
 - Service licenses (cosmetology, massage, tattoo)
 - **Food handlers permit:**
- Explore local city zoning ordinances and business licensing requirements
 - City noise ordinances
 - Zoning requirements
- Construction and building permits
 - Passing local inspections such as building, fire, and safety inspections

Standard 3

Explore online regulations/best practices for the following areas.

- Securing your website
 - **HTTP:** Not secured website
 - **HTTPS:** Secured website.
 - Secure payments
- Online Cookies or data collection disclosure
- Privacy Policy best practices
- Terms of Use best practices

Performance Skill

Compare and contrast local business regulations and requirements to open a business in two neighboring cities
Identify federal agencies and organizations that regulate a business

For a year-long math course continue the second semester by teaching the General Financial Literacy strands and standards.

Test Name	Test #	Number of Test Points and Percentages by Strand								Total Points	Total Questions
		1	2	3	4	5	6	7			
Small Business Math	236	5	10	10	7	8	5	5		50	100
		10	20	20	14	16	10	10			