

Cicerone Certification Program™

Master Syllabus

As of March 12, 2008

This syllabus outlines the knowledge needed by those preparing for the Certified Cicerone™ and Master Cicerone™ exams. Those [portions formatted in blue](#) in the body of the syllabus will not be covered on the Certified Cicerone exam.

Outline

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II. Beer Styles

- A. Reasons for and identification of beer styles
- B. History, characteristics and flavor attributes of individual styles

III. Beer Flavor and Evaluation

- A. Taste & Flavor
- B. Identify normal flavors of beer and their source
- C. Identify common beer flavors by name and source
- D. Identify “off” beers that should be replaced or removed from sale.
- E. Identify beer flavors according to the styles in which they should be found
- F. Distinguish between beer styles on the basis of appearance, aroma and flavor

IV. Beer ingredients and brewing processes

- A. Ingredients
- B. Processes

V. Pairing Beer with Food

- A. Understanding of why beer and food are such good partners
- B. Familiarity with the principles of the beer and food pairing process
- C. Familiarity with pairing beer and various meal parts, and creating full beer dinner menus
- D. Familiarity of beer as a cooking ingredient
- E. Familiarity with traditional beer-centric cuisines and pairings

Full Syllabus

I. Keeping and Serving beer

A. Purchasing and accepting beer

1. The three tier system in the United States and the reasons for its existence
 - a. By law, alcoholic beverages must comply with the three tier system in the United States. The three tiers are Brewers/Importers, Distributors, Retailers.
 - i. Brewers & importers sell to distributors
 - ii. Distributors sell to retailers
 - iii. Retailers sell to consumers
2. Taxes levied on beer and the retailer's responsibility for them
 - a. Federal Excise Tax – paid by brewers
 - b. State Excise Tax – generally processed and paid by distributors
 - c. Sales taxes and other locally-required fees – paid by retailers
 - d. Overall tax burden carried by beer
3. Assessing your beer shipment: physical condition and age
 - a. Date code if available
 - b. Physical condition of container: not dented or broken, no signs of leakage or box weakness.
 - c. Temperature: ideally beer will still be cool when it reaches the retailer, the flavor of beer that is warm or hot to the touch may have been substantially altered during shipment.

B. Serving Alcohol

1. Alcohol's Effects
 - a. Absorption and elimination
 - b. Physical and behavioral indicators
2. Responsible serving
 - a. Legal considerations
 - b. Healthy consumption
 - c. Good practice in selling alcohol

C. Beer Storage

1. Beer is best consumed fresh
 - a. When beer is released from the brewery, it is ready to drink
 - b. A very few strong or intensely flavored beers may age in ways that make them interesting to drink months or years later if properly cellared.
2. Freshness can be preserved and enhanced by wholesaler and retailer actions
 - a. Rotate inventory
 - i. Ensure that beer is consumed in the order of dating
 - ii. Remove out of date products from service inventory
 - iii. When beers lack an expiration date:
 - Non-pasteurized draft beer about 45-60 days (refrigerated)
 - Pasteurized draft beer about 90-120 days (refrigerated)
 - Bottled beer:
 1. If kept refrigerated, can be good for up to six months
 2. When not refrigerated or subjected to other stresses, may be noticeably off after three months

3. Taste aged product against fresh product to determine deterioration
- b. Store beer properly
 - i. Refrigerated storage is best for all beers at all times. Required for draft beer and many craft beers.
 - ii. Non-refrigerated storage accelerates aging and development of off flavors. With time, all beers will develop signs of oxidation (with papery, wet cardboard flavors).
 1. Possible development of microbial off flavors (sour, buttery)
 2. Possible autolysis of yeast when present (meaty)
 - iii. Bottled beers are subject to skunking
 1. Caused by sunlight and fluorescent light
 2. Most noticeable in the aroma of the beer
 3. Occurs in minutes in unprotected beer (clear glass)
 4. Green glass bottles provide very little protection from skunking because it does not block the harmful wavelengths of light
 5. Brown glass provides the best protection of any bottle
 6. Cans, bottles in closed case boxes that completely shield beer from light give maximum protection from skunking.
 - c. Serve beer properly
 - i. Draught beer must be served using CO₂ or a CO₂-nitrogen mix at the proper pressure setting.
 - ii. Compressed air should never be used instead of CO₂ or a CO₂-nitrogen mix in a draft dispense system.
 - iii. A party pump limits the flavor stability of the beer to **less than one day** because oxygen is put in contact with the beer.
- D. Draft Systems and Their Maintenance
- a. Anatomy of a keg
 - i. Structure
 - ii. Keg valve types
 - iii. Volumes
 - iv. Other serving vessels
 - b. Anatomy of US draft systems (Direct draw, air cooled, & glycol)
 - i. Pressure side components, anatomy & function
 - Gas sources
 - Cylinder/Bulk tank
 - Nitrogen generator
 - Air compressor
 - Gas blender
 - Beer pump
 - Regulators
 - Pressure line
 - Couplers
 - ii. Beer side components, anatomy & function
 - Couplers

- Jumper line
 - Fob Detectors
 - Beer pumps
 - Trunk line
 - Power packs
 - Beer line
 - Choker
 - Draft tower
 - Beer faucets
- c. Draft system design
 - i. Principles and goals, appropriate application of each system type
 - ii. Effect of variations in gases & pressures
 - iii. Effect of variations in draw distance
 - iv. Influences of product mix & volume
 - v. System balance
 - d. Draft system operation
 - i. Balance of temperature & pressure
 - ii. Troubleshooting (for each system type)
 - No beer at faucet
 - Beer foaming
 - Flat beer
 - Cloudy beer
 - False head
 - e. Draft system maintenance
 - i. Cleaning of lines, taps & couplers
 - ii. Goals of cleaning
 - iii. Criteria for proper cleaning: cleaner, temperature, time, velocity
 - iv. Role of manual cleaning
 - v. Cleaning system components
 - vi. Operation of line cleaning cycle
 - vii. Safety issues: operator, consumer
- E. Beer Glassware
1. Select appropriate glassware
 - a. Size – based on style and alcohol content (stronger beers, smaller glass), provide room for 1-inch head
 - b. Shape – tradition for style, presentation
 - c. Brand – branded glasses matched to beer
 2. Use beer clean glassware
 - a. Glass cleaning procedure
 - i. Empty glass into open drain
 - ii. Wash with sudsless soap & brush
 - iii. Rinse in cold water, heel in, heel out
 - iv. Rinse in sanitizer
 - v. Dry on rack so air circulates inside
 - vi. Rinse with cold water immediately before dispense
 - b. Checking glass for “beer clean”

- i. Without beer
 - Sheeting & spots
 - Salt test (Wet glass, sprinkle salt throughout, places where salt does not adhere are not beer clean.)
 - ii. With beer
 - Head size, shape, retention
 - Lacing as beer is consumed
 - c. Preparation to serve
 - i. Glass temperature
 - Room temp is fine, chilled is OK, but unnecessary.
 - Frozen/frosted is not recommended: causes foaming, too cold
 - ii. Rinse: cold water rinse of glass before filling aids in creating a beer-clean glass and achieving ideal head formation and retention.
- F. Serving Bottled Beer
- 1. Examine bottle
 - i. Check for yeast on bottom and decide how to pour
 - Retain yeast in bottle
 - Pour yeast
 - Small amount of yeast found in many beers, can just pour
 - Hefeweizen: some rouse the yeast to maximize yeast content in the beer. Some consumers prefer their beer without the yeast.
 - ii. Look for white flakes (snow-like) which could indicate old, unstable beer. Do not serve beer in this condition.
 - iii. Look for a thin ring of gunk at liquid level in neck (if visible) likely bad bottle if present. Do not serve beer in this condition.
 - 2. Opening bottle: twist off, lift off, cork, combo
 - i. Twist off: twist off by hand. Napkin may be used to aid grip, protect hand.
 - ii. Lift caps
 - Prefer openers with a bar or other lift area at least a ¼ inch wide to prevent possibility of breaking the bottle during opening.
 - Lift in one motion
 - iii. Mushroom cork: remove wire cage by untwisting the tab. Then remove by hand, napkin may aid grip. Be gentle so as not to disturb sediment and make beer volatile.
 - iv. Cap plus cork: corkscrew will be required after removing cap.
 - v. If rare, unusual or new beer, you may want to present the cap to the consumer. Nearly always want to present the cork.
 - vi. Check bottle lip: ensure that bottle lip has not been damaged during opening creating the possibility of broken glass being poured into the consumers' glass. May also examine for rust, dried beer or yeast that could affect flavor or appearance of beer.
 - 3. Pouring bottled beer
 - i. Hold glass at 45 degree angle, pour down the side until glass is half full
 - ii. Gently tilt glass upright and pour down the middle to create approximately 1 inch of foam head on the beer as the pour finishes. Weizen head will be larger with 2-3 inches of head.

- iii. Some brands contain a small amount of yeast at the bottom of the bottle. In most cases, you want to retain the yeast in bottle so be prepared to stop pouring when you see the yeast moving toward the top of the bottle.
 - iv. When in doubt about pouring yeast, ask the consumer their preference.
- G. Serving Draught Beer
- a. Pouring a beer
 - i. Hold glass at 45 degree angle, one inch below the tap faucet
 - ii. Grip tap handle near the base, pull forward to the fully open position to start the flow of beer. Never open beer tap part-way as this causes foaming.
 - iii. Pour down the side until glass half full
 - iv. While continuing to pour gently tilt glass upright and pour down the middle to create approximately 1 inch of foam head on the beer as the pour finishes.
 - v. Close faucet as foam cap reaches the top of the glass to prevent beer waste.
 - vi. Never put tap faucet in contact with the glass or allow it to become immersed in beer in the glass.
 - b. Changing a keg
 - i. Allow kegs 24 hours in the cooler to chill and settle before tapping and serving.
 - ii. On common American and import Sankey kegs: grip keg coupler handle, pull out and raise to the “up” or “off” position to disengage. Turn the coupler a quarter turn (90 degrees) counterclockwise to unseat. Lift off of the keg.
 - iii. Seat the coupler on a new keg. Turn clockwise a quarter turn (90 degrees) to engage then lower the coupler handle to the “down” or “on” position. In long-draw systems that use them, the foam-on-beer (FOB) detector for the keg needs to be reset after a keg change. This is usually done by venting the FOB mechanism to release foam and gas from the chamber.
- H. Special situations
- 1. Growlers and draft beer to go
 - a. Filling techniques and shelf life
 - b. Closures: legal and technical issues
 - c. Cleaning and reusing growlers
 - 2. Party pigs, mini-kegs and other containers
 - a. Filling techniques, product quality and shelf life
 - b. Serving setups: CO2 or hand pump and implications for product quality and serving life
 - b. Cleaning and refilling
 - 3. Real ale from cask
 - a. Definition of real ale
 - b. Anatomy of a cask, anatomy of beer engine
 - c. Real ale process from brewer to bar customer
 - d. Cellaring real ale: soft and hard spiles, taping, assessing readiness for service
 - e. Real ale serving systems: gravity versus beer engine, long-draw

- f. Serving life of cask ale: assessing product quality, cask breathers
- I. Economics of beer retailing

II. Beer Styles

- A. Reasons for and identification of beer styles
 - 1. The historical development of beer styles
 - a. Based on available ingredients, equipment and water
 - b. Cataloged today in the US, principally by
 - i. Beer Judge Certification Program, and
 - ii. Brewers Association
 - 2. Quantitative parameters of beer character
 - a. Original gravity
 - b. Final gravity
 - c. International Bitterness Units
 - d. Color (SRM, EBC)
 - e. Attenuation
 - f. Carbonation
 - 3. Qualitative parameters of beer character
 - a. Aroma
 - b. Flavor
 - c. Aftertaste
 - d. Mouthfeel
 - e. Carbonation
 - f. Temperature
- B. History, characteristics and flavor attributes of individual styles
 - 1. German/Czech
 - a. Lagers
 - i. Pale
 - German Pilsner
 - Bohemian Pils
 - Helles
 - Dortmunder
 - ii. Amber/dark/strong
 - Vienna
 - Marzen/Oktoberfest
 - Dunkel
 - Schwarz
 - Bock
 - Maibock
 - Doppelbock
 - Eisbock
 - iii. Specialities
 - Rauch
 - Keller
 - Stone
 - b. Ales

- i. Wheat beers
 - Weizen/Weiss
 - Kristal Weizen
 - Dunkelweizen
 - Weizenbock
 - Berliner Weiss
 - [Geman Rye Beer \(Roggenbier\)](#)
 - ii. Rhine Valley ales
 - Alt
 - Dusseldorf-style Alt
 - [North German Alt](#)
 - Kolsch
2. Belgian/French Styles
- a. Trappist & Abbey Ales
 - i. Single
 - ii. Double
 - iii. Triple
 - iv. [Quad](#)
 - b. Spontaneously Fermented Beers
 - i. Lambic
 - ii. Gueuze
 - iii. [Faro](#)
 - iv. Kriek, Framboise and other fruit lambics
 - c. Flanders Ales
 - i. Red
 - ii. Brown
 - d. Farmhouse beers
 - i. Saison
 - ii. Biere de Garde
 - iii. Wit
 - e. Other Belgian Beers
 - i. Blond Ale
 - ii. Pale Ale
 - iii. Strong Golden
 - iv. Strong Dark
 - v. Belgian Specialty Ale
3. British Styles
- a. English Ales
 - i. Pale beers:
 - Bitter
 - Special Bitter
 - ESB
 - English IPA
 - ii. Dark beers
 - Mild
 - Brown ale (Northern/Southern)

- Porter (Brown/Robust/Baltic)
 - Sweet stout
 - iii. Strong beers:
 - Strong ale
 - Old ale
 - Barleywine
 - b. Scottish Ales
 - i. Scottish Ales: 60/-, 70/-, 80/- ales
 - ii. Scotch Ale: 90/-, Wee Heavy
 - c. Irish Ales
 - i. Dry Stout
 - ii. Foreign Stout
 - iii. Imperial Stout
 - iv. Red ale
- 4. American Styles
 - a. Historical
 - i. American Lager (Light, Standard, Premium, Classic Am Pilsner)
 - ii. Cream Ale
 - iii. Steam Beer (pre-prohibition)
 - iv. Porter/IPA
 - b. Modern
 - i. Blonde and Golden Ales
 - ii. Pale and Amber Ales
 - iii. India Pale Ale/Imperial IPA
 - iv. Brown Ale/Porter
 - v. American Stout/Oatmeal Stout/Imperial Stout
 - vi. Strong ale, old ale, barleywine
 - vii. Pilsner, Oktoberfest, Bock
 - c. Specialties
 - i. Wood & barrel aged
 - ii. Smoked beers
 - iii. Alternative fermentation organisms
 - iv. Fruit & vegetable beers
 - v. Herbs, spices and other natural flavor ingredients (coffee, honey)

III. Beer Flavor and Evaluation

- A. Taste & Flavor
 - 1. How we perceive flavor
 - a. Aroma
 - b. Taste
 - i. Sweet
 - ii. Salty
 - iii. Sour/Acid
 - iv. Bitter
 - v. Umami
 - c. Sensation

- i. Body
 - ii. Mouthfeel
 - iii. Carbonation
 2. Variations in taste perception
 - a. Biological differences
 - b. Behavioral differences
 - i. Smoking, food preferences
 - ii. Consumption habits
 3. Assessing flavor
 - a. Setting and tools
 - i. Environment for tasting
 - ii. Drinking vessels and other accessories
 - b. Evaluation
 - i. Aroma
 - ii. Appearance
 - iii. Flavor
 - iv. Mouthfeel
 - v. Aftertaste
- B. Identify normal flavors of beer and their source
 1. Malt
 - d. Pale
 - e. Dark
 - f. Crystal
 - g. Roast barley
 - h. Specialty grains: oatmeal, rye, wheat
 2. Hops
 - a. Bitterness, flavor and aroma effects
 - b. Regional hop traits: American, English, German/Czech
 - c. Familiarity with flavors of specific hop varieties from each region
 3. Yeast flavors
 - a. Ale versus lager flavors
 - b. Weizen yeast flavor
 - c. Acidic fermentation (lactic, acetic)
 - d. *Brettanomyces*
- C. Identify common beer flavors, by name and source.
 1. From *Saccharmyces cerevisiae*
 - a. Diacetyl
 - b. DMS (dimethyl sulfide)
 - c. Sulfur flavors
 - d. Acetylaldehyde
 - e. Phenolic
 - f. Iso-Amyl Acetate
 - g. Iso-Ethyl Acetate
 2. From other organisms
 - a. Diacetyl
 - b. Phenolic

- c. Acetic
- d. Lactic
- 3. Packaging and storage
 - a. Oxidation flavors
 - i. Honey
 - ii. Papery
 - iii. Cardboardy
 - iv. Sherrylike
 - b. Skunky/light struck
 - c. Autolysis
- 4. Process & Ingredients
 - a. Cheesy
 - b. Metallic
 - c. Soapy
 - d. Sulfury
 - e. DMS
 - f. Acetylaldehyde (green beer)
 - g. Warty
 - h. Astringent
 - i. Grainy

D. Confidently identify “off” beers that should be replaced or taken off service. (You’ll be given a beer and told what it is (brand/product name) and then asked whether it should be served, replaced or removed from sale.)

E. Identify a comprehensive list of beer flavors, tying them to styles in which they should and should not be found. (Taste and describe the flavors of a beer; select the correct beer from among three possibilities based on a flavor description.)

F. Distinguish between beer styles:

1. Certified Cicerone level examples: Pale ale v. IPA, Pilsner v. helles, bitter v. Scottish ale, American wheat v. German-style weizen,
2. Master Cicerone level examples: German v. Bohemian pilsner, porter v. stout, kolsch v. golden ale,

IV. Beer ingredients and brewing processes

A. Ingredients

1. Grains
 - a. Malted barley
 - i. Why barley used for brewing
 - ii. Types of barley, cultivation areas, common diseases
 - iii. Malting: process stages and steps, how floor malting differs from other types of malting
 - iv. Process variations that lead to different malt types
 - b. Wheat, oats, rye and other specialty grains
 - i. Forms used: raw, malted, flaked, torried
 - ii. Impact on brewing process
 - iii. Sensory contributions to finished product

- c. The use of corn and rice in beer
 - i. What they contribute to wort and beer
 - ii. Requirements for processing
 - iii. Styles where used
2. Hops
 - a. Anatomy of hop plant and cone
 - b. Methods of cultivation
 - i. Structure and layout of hop field
 - ii. [Attending to the hop plant: pruning, training](#)
 - iii. [Common pests & diseases](#)
 - iv. Harvesting, Drying & Baling
 - v. Storage and delivery to breweries
 - c. Growing regions
 - i. Continental Europe
 - Germany
 - Czech Republic
 - Belgium
 - France
 - ii. Britain
 - iii. United States
 - Yakima Valley
 - Oregon, Idaho, California
 - iv. Australia & New Zealand
 - v. Other areas
 - d. Varieties
 - i. Bittering hops
 - ii. Aroma Hops
 - Noble Hops
 - iii. Dual use hops
 - iv. US cultivars of classic European hops
 - e. Chemistry
 - i. Alpha acids and IBUs
 - ii. Hop oils determine flavor and aroma
 - [Four major oils](#)
 - [Role of oxidation in hop flavor](#)
 - f. Hop forms and products used in brewing
 - i. Whole hops
 - ii. Pellet hops (90/45)
 - iii. Extracts
 - [Alpha acid](#)
 - [Isomerized](#)
 - [Hydro-isomerized](#)
 - [Essential oils](#)
 - g. Uses and effects during brewing
 - i. Bittering contribution of hops added at different times during the boil
 - ii. Flavor and aroma hop additions and effects

- Boil
 - Steep
 - Dry Hopping
 - iii. Novel applications for hops
- 3. Yeast
 - a. Ale, lager & weizen yeast: traits, use and flavor effects
 - b. Factors required for healthy fermentation: aeration, pitching amounts, yeast health
 - c. Non-Sac cerevisciae organisms
 - i. Intentional use
 - ii. Unintentional appearance
- 4. Water
 - a. The importance of water in brewing
 - b. Chemistry of water:
 - i. Chlorine and its removal
 - ii. Salts and their source
 - iii. Permanent and temporary hardness
 - c. Common water salt compositions
 - d. Possible adjustment of brewing water for the production of specific beer styles and their flavor effects
- 5. Other ingredients
 - a. Fruit, sugar, herbs and spices
 - b. Considerations in their addition to beer: when & how added, likely effects
 - c. Historical precedent for addition of non-traditional ingredients

B. Processes

1. Milling
 - a. Types of mills and their potential impact on beer
 - b. Purpose and objectives of milling
 - c. Traits of a proper grind (for lauter tun)
2. Mashing
 - a. General description and goals
 - b. Major enzymes active during mashing and their impact on beer attributes
 - c. Types of mash regimens and when they might be used, impact on flavor and beer character. (infusion, step-infusion, decoction, historical methods)
3. Lautering
 - a. Objectives of lautering
 - b. General process of lautering
 - c. Potential impacts of lautering on beer flavor
4. Boiling
 - a. Objectives of boiling
 - b. Heating methods and equipment variations
 - c. Potential flavor impacts of boil
5. Whirlpool
 - a. Objectives of whirlpool
 - b. General operation of whirlpool including wort removal

- c. Potential flavor impacts of whirlpool
 - d. Alternatives to whirlpooling: wort strainer, cold flotation
- 6. Chilling
 - a. Modern methods of wort chilling
 - b. Historical methods of wort chilling
 - c. Flavor issues associated with wort chilling
- 7. Aeration & Pitching
 - a. Reasons for wort aeration
 - b. Proper timing of wort aeration
 - c. Effects of air on wort and beer
 - d. Potential flavor impact of aeration
- 8. Fermentation (*Saccharomyces cerevisiae*)
 - a. General description of fermentation
 - b. Common chemical inputs and outputs
 - c. Secondary chemical outputs
 - d. Equipment used for fermentation
 - e. Design & appearance of fermentation vessels
 - f. Potential flavor impacts of fermentation vessels
 - g. Variations in fermentation temperature and its flavor impact
 - h. Other variations in fermentation and their possible effect on beer character
- 9. Lagering
 - a. Objectives of lagering
 - b. Use of wood strips or chips
- 10. Aging
 - a. Flavor impacts of aging
 - i. In stainless steel
 - ii. In new wood
 - iii. In previously used wood
 - b. Factors influencing flavors produced
 - i. Prior use of vessel
 - Residual flavors from other liquids
 - Microflora
 - ii. Porosity and micro-aeration (surface to volume ratio)
 - iii. Char or toast
 - iv. Time and temperature
- 11. Clarification
 - a. Common methods used for beer clarification
 - i. Filtration
 - ii. Finings
 - iii. Settling/aging
 - b. Agent, action, consumer issues (flavor, residue, preferences)
- 12. Carbonation
 - a. Carbonation levels found in beer (by style or type) in volumes of CO₂
 - b. Methods of achieving carbonation in beer, when and how used
 - i. Capture during fermentation
 - ii. Forced carbonation

- iii. Secondary fermentation in serving vessel
- c. Sensory impact of carbonation on finished beer
- 13. Packaging & Pasturization
 - a. Draft
 - i. Keg
 - ii. Cask
 - iii. Alternative Containers (e.g. mini-keg, pig)
 - b. Bottle
 - i. Filtered beer
 - ii. Bottle-conditioned beer
 - c. Other (at the brewery)
 - d. Pasteurization and its impact on beer
 - i. Types: flash versus bottle
 - ii. Conditions required to pasteurize
 - iii. Impact on stability and flavor

V. Beer & Food

Note: This section depends on a good working knowledge of the sensory vocabulary and range of variation of beer, which is covered elsewhere in this syllabus, and also a similar awareness of the flavor range of foods.

A. Understanding of why beer and food are such good partners

1. Beer *is* food
 - a. Cereals
 - b. Cooked
 - c. Fermented
 - d. Lots of simpatico flavors, aromas
2. Huge variation in many aspects
 - a. Strength/impact
 - b. Alcohol
 - c. Sweetness/dryness
 - d. Acidity
 - e. Bitterness
 - f. Kilned/cooked flavors
 - g. Carbonation
 - h. Aroma
3. Works well with spicy foods
 - a. Sweetness of malt is soothing
 - b. Carbonation cleanses palate
 - c. Thirst-quenching
4. Works well with rich or fatty foods
 - a. Carbonation cuts sweetness, fat
 - b. Hops counteract richness, sweetness
 - c. Big, sweet enough to match intensity

5. Harmonious with smoked, roasted, grilled foods

Malt kilning creates flavors that are resonant with these flavors

Plus, most are also rich &/or fatty

B. Familiarity with the principles of the beer and food pairing process

1. Match intensity of beer to the dish it's being served with

a. Strongly-flavored food with strongly flavored beer

b. Gravity/alcohol not the only measure

c. In beer, intensity is the sum of:

i. Original gravity

ii. Roast character

iii. Hop bitterness

iv. Body and sweetness

v. In specialty beers, may also be: fruit, spice, acidity, barrel character, etc.

d. In food, the sum of ingredients, preparation, sauces, seasonings, garnish

2. Find common and/or resonant elements.

a. [From full vocabulary of beer and food](#)

b. Commonly encountered possibilities

i. Kilned malt character with food cooking methods

- Roasted, caramelly, biscuit, cocoa, coffee, nutty, etc.

ii. Hop aromas and flavors

- Culinary herbs

- Citrus

- Floral

iii. Fermentation characters

- Spicy, fruity, hiney, woody, earthy, barnyard

iv. [Specialty beers with food ingredients](#)

c. [Familiarity equals resonance, too](#)

i. [Beer has lots of familiar food flavors in liquid form](#)

ii. [Use to create familiar combinations](#)

- [Stout \(tastes like chocolate\) float](#)

- [Camembert + toasty brown ale \(tastes like grilled cheese\)](#)

3. Deal with contrasting elements

a. Hop Bitterness

i. Not always welcome

ii. Great for cutting fat

iii. Balances sweetness

iv. But, may overemphasize heat

v. Lingers on the palate

vi. Part of overall flavor impact

b. Fat/richness

i. Carbonation cuts it

ii. Bitterness, roastiness balances

iii. Acidic beers can also cut fat

c. Sweetness

i. In food, balanced by bitterness, alcohol, roastiness

- d. Umami (savory protein flavor)
 - i. Balanced by bitterness
 - ii. Comfortable with toasty/roasty
 - e. Chile spice
 - i. Countered by malty sweetness
 - ii. Exaggerated by hop bitterness
- C. Familiarity with pairing beer and various meal parts, and creating full beer dinner menus
1. General
 - a. Lighter to more intense progression
 - b. Consider all elements on plate for any dish/pair
 - c. Make sure each pair has a story to tell
 2. Appetizers/aperitifs
 - a. Lightest beers and foods
 - b. Crisp bitterness stimulates appetite
 - i. Appropriate with fried food, bitter greens
 3. Main Dishes
 - a. Moderate to slightly stronger beers usually best
 - b. Decide on elements to focus pairing efforts
 - i. Ingredient, cooking method, sauces, etc.
 - c. Where to start with specific dishes?
 - i. Fish: lagers and lighter ales
 - ii. Shellfish: pale-colored ales, can be bigger with rich foods like lobster, crab; bitterness OK with fried preparation. Oysters + stout.
 - iii. Roasted chicken, pork: Medium intensity amber-to-dark lagers or ales.
 - iv. Beefy dishes. Richer, amber-to-black ales or lagers. Hops OK.
 - v. Pizza: Pale to brown ales and lagers. Some hops OK.
 - vi. Burgers: amber-to-black ales or lagers. Hops OK.
 - vii. Vegetarian: Pale to amber lagers, lighter ales (see cuisines below)
 - viii Charcuterie: Amber-to black, moderate intensity beers, esp. smoked beer. Moderate hops OK.
 - d. Where to start with specific cuisines?
 - i. Mediterranean: pale lagers and lighter ales. Toast, hops OK with tomatoes
 - ii. Germanic: European lagers, weissbier
 - iii. Belgian: Crisp, spicy/fruity ales; not a lot of hops
 - iv. Spicy Latin, Cajun: malty pale-to-amber lagers
 - v. Indian: Pale, but spicy ales, some hops OK
 - vi. Thai: intense pale lagers and lighter ales.
 - vii. Barbecue: dark, toasty-to roasty ales. Hops OK.
 4. Dessert
 - a. Big and huge beers work best
 - b. Sweet & fat have huge flavor impact
 - c. Bitterness counteracts sweetness

- d. Awareness of dessert types, and beers that work with various flavor elements of them
 - i. White fruit desserts (apple pie, etc): Strong, pale beers, low hops, honey, light caramel notes good.
 - ii. Red fruit desserts: fruit ales, chocolatey stouts OK for intense dishes
 - iii Sweet creamy desserts (crème brûlée, cheesecake): pale, strong, bitter ales. Pale strong Belgians OK.
 - iv. Caramelly desserts (bread pudding, caramel sauce): strong, sweeter beer, hoppiness OK
 - v. Lighter chocolate dishes: porter, strong brown ale, Belgian dubbel
 - vi. Intense, dark chocolate: Imperial stout, barley wines, esp barrel-aged.

5. Cheese

- a. Have familiarity with styles of cheese and different milks, butterfat content, aging processes
- b. Awareness of cheese flavor vocabulary and how that works with beer
 - i. Buttery/creamy: Sweetness, caramel, alcohol; bitter OK
 - ii. Nutty: nutty, toasty, fruity, perhaps chocolatey
 - iii. Caramelly: Toasty/roasty, chocolatey
 - iv. Meaty: Toasty/roasty; bitter OK
 - v. Blue (mold): Hop aroma; bitter OK
 - vi. Eathy/mushroomy: earthy, barnyard (*Brettanomyces*), pale, acidic
 - vii. Stinky: caramelly, toasty, malty
 - viii. Pungent/sharp: Crisp, pale-to-brown, bitter OK
 - ix. Salty: Roasty, toasty

D. Familiarity of beer as a cooking ingredient

- 1. Common uses in cooking
 - a. Batters: lightens texture, adds flavor
 - i. Pale lager or ale. Some hops OK
 - b. Marinades: adds flavor
 - i. Pale-to-brown lager or ale
 - ii. Avoid bitterness
 - c. Roasting liquid: adds moisture flavor
 - i. Pale-to black lager or ale
 - ii. Avoid bitterness
 - d. Deglazing or in sauces: adds flavor/complexity
 - i. All non-bitter types
 - ii. Never reduce
- 3. Types of beer generally recommended as a cooking ingredient
 - a. Malty lager
 - b. Bock and doppelbock
 - c. All Belgian Ales
 - d. Kriek or Framboise for fruit flavors
 - e. Weizen, weizenbock

f. Brown ale, porter, stout (without too much bitterness)

E. Familiarity with traditional beer-centric cuisines and pairings

- a. Belgium
- b. Germany
- c. England