

Barista Skills

Intermediate AST Guidebook



Barista Skills Intermediate

AST Guidebook V1.0 (English)

Table of Contents

| | |
|---|----|
| 1. General Information | 2 |
| 2. Course Description and Updates | 3 |
| 3. Written Exam Questions Distribution by Topic..... | 4 |
| 4. Course Curriculum with Corresponding Online Written Exam Questions | 6 |
| 5. Essential SCA Training Documents | 32 |
| 6. Required Equipment and Supplies List | 32 |
| 7. Bibliography | 32 |
| 8. Appendices | 34 |
| Appendix A: SCA Barista Routines..... | 34 |
| Appendix B: SCA Brew Parameters | 35 |

Note: This guidebook replaces previous curriculum documents. This guidebook is only available to authorized trainers licensed in Barista Skills. Please do not share this document with other ASTs or learners.

1. General Information

Course Information

Course Length: Minimum 14 hours including practical exam

Pre-requisites: Introduction to Coffee and Barista Foundation are recommended (but not mandatory) pre-requisite modules. All knowledge and skill from these modules will be assumed as being held and may be tested through the practical and/or written assessments.

Written Exam Information:

Total Number of Questions on Online Written Exam: 35 (worth one point each)

Total Time Allowed for Online Written Exam: 37

Passing Score (Online Written Exam): 70%

Practical Exam Information:

Total Time Allowed for Practical Exam: 30 minutes

Total Number of Sections on Practical Exam: 3

Passing Score (Practical Exam): Section 1 = 12 points available

Section 2 = 10 points available

Section 3 = 78 points available

A candidate must achieve 85 points from the available 100 points in all three sections in order to pass.

2. Course Description and Updates

Description

The Barista Skills Intermediate course builds on the concepts and skills introduced in the Foundation course. It is ideal for someone who has barista skills experience and wants to explore how to improve coffee quality and prepare for more complex job functions found in the barista profession. Through this interactive course, learners will gain a deeper understanding of the coffee itself, specifically the impact of a coffee's variety, origins and processing methods on flavor; the parameters of coffee quantity, grind texture, water quality and shot time and their interaction when dialling in a brew recipe; drink construction and taste differences; workflow management and efficiency, sensory aspects of the espresso extraction; milk handling and techniques as well as latte art. In addition to coffee preparation, this course also covers key concepts regarding health and safety, customer service and basic business practices.

Curriculum Updates from Previous Version

- Practical exam has been revised to make it easier for ASTs to deliver
- 2.05.01 - Different Compounds and Flavors Extracts at Different Rates – In this topic, a mandatory activity, allowing for demonstration of an important skill has been included since it was removed from the Practical Exam. Below is the activity

MANDATORY ACTIVITY:

Learner should be able to describe taste of a double espresso split in 3 parts, as following:

- a. The first 12-14g = sour/salty/heavy body
- b. The second 12-14g = relatively sweet/medium body
- c. The third 12-14g = bitter/light body

Additions

- Revised coding for all section, topics and objectives
- Detailed resources for most topics

3. Written Exam Questions Distribution by Topic

The chart below sets forth key information regarding the online exam questions.

Question Pool: This is the number of questions per topic that are available to present to the learner during the online exam.

Questions Presented: This is the number of questions a learner will randomly receive per topic during the online exam. This number was determined by the creators for the purpose of ensuring that each section and topic of the course is weighted appropriately.

Section Weighting: Next to each section title is the percentage of the total exam represented by the questions in that section.

| Exams Sections & Topics | Question Pool | Questions Presented | Exams Sections & Topics | Question Pool | Questions Presented |
|---|---------------|---------------------|---|----------------|---------------------|
| 2.01 Section COFFEE BEANS 23% | | | Sub-Topic: Milk Composition | 2 | 1 |
| 1 Topic: Arabica Varieties | 2 | 1 | Sub-Topic: Foam Quality and Stability | 2 | 1 |
| 2 Topic: Origin's Impact on Flavor | 3 | 1 | 2 Topic: Milk Substitutes | 3 | 1 |
| 3 Topic: Processing Methods and Their Impact on Flavor & Body | 4 | 2 | 3 Topic: Causes of Milk Deterioration | 1 | 1 |
| 4 Topic: Roast Degree's Impact in Coffee Solubility & Density | | | 4 Topic: Milk Foaming Technique | | |
| Sub-Topic: Solubility | 2 | 1 | Sub-Topic: SCA Foam Standard | Practical Exam | |
| Sub-Topic: Density | 2 | 1 | Sub-Topic: Desirable Milk Heating Temperature | Practical Exam | |
| 5 Topic: Degassing of Roasted Coffee | | | Sub-Topic: Maximum Milk Heating Temperature | 2 | 1 |
| Sub-Topic: Degassing and Its Effect on Solubility | 2 | 1 | 5 Topic: Pitcher/Jug Sharing | Activity | |
| Sub-Topic: Packaging and Temperatures Effect on Degassing | 2 | 1 | 6 Topic: SCA Latte Art Standards - Free Pour | Practical Exam | |
| 2.02 Section WORKSPACE MANAGEMENT AND WORKFLOW 6% | | | 2.07 Section ESPRESSO BASED MENU 3% | | |
| 1 Topic: Efficient Coffee Equipment and Accessories Layout | 2 | 1 | 1 Topic: Espresso-Based Drinks Range Construction and Taste Differences | 3 | 1 |
| 2 Topic: Working in Pairs | 1 | 1 | 2 Topic: Preparing Multiple Beverages to SCA Drinks Standards | | Practical Exam |
| 2.03 Section ESPRESSO PROCESS: GRIND, DOSE, TAMP 8.5% | | | 2.08 Section CLEANING, HEALTH AND SAFETY 17% | | |
| 1 Topic: Impact of Grinder Models & Burrs Types on Retention & Flow Rate | 3 | 2 | 1 Topic: Stock Management | | |
| 2 Topic: Consistent Dosing, Distribution and Tamping Techniques | 2 | 1 | Sub-Topic: Stock Rotation | 2 | 1 |
| 2.04 Section EXTRACTION AND BREWING 11.5% | | | Sub-Topic: Stock Temperatures | 2 | 1 |
| 1 Topic: Calculation and Expression of Brew Ratio & Espresso Brew Formula (EBF) | 2 | 1 | 2 Topic: Personal Hygiene | 2 | 1 |

| | | | | | |
|--|--------------------|---|--|----------------------|----|
| 2 Topic: Strength and Extraction in Espresso Brewing | | | 3 Topic: Preventing Cross Contamination | 2 | 1 |
| Sub-Topic: Espresso Strength | 2 | 1 | 4 Topic: Preventing Accidents and Strain Injuries | Activity | |
| Sub-Topic: Espresso Extraction | 2 | 1 | 5 Topic: Grinder Cleaning & Maintenance | 2 | 1 |
| 3 Topic: Use of A Refractometer | Activity | | 6 Topic: Espresso Machine Cleaning & Maintenance | 3 | 1 |
| 4 Topic: Brew Recipes Impact on Flavor and Body of The Same Coffee | 2 | 1 | 2.09 Section WATER QUALITY 0% | | |
| 2.05 Section Sensory 8.5% | | | 1 Topic: SCA Water Test & Guidelines | Activity | |
| 1 Topic: Different Compounds and Flavors Extracts at Different Rates | 2 | 1 | 2.10 Section CUSTOMER SERVICE AND CAFÉ MANAGEMENT 8.5% | | |
| 2 Topic: Relationship Between Taste & Flavor Development | Mandatory Activity | | 1 Topic: Coffee Menu Description | AST to cover concept | |
| 3 Topic: SCA Flavor Wheel Terminology for Description of Aroma & Flavor Attributes Of Espresso | 2 | 1 | 2 Topic: Customer Interactions | 1 | 1 |
| 4 Topic: Body & Texture of An Espresso | 2 | 1 | 3 Topic: Cost and Goods | 2 | 1 |
| 2.06 Section MILK 14% | | | 4 Topic: Service Recovery and Complaint Handling | 2 | 1 |
| 1 Topic: Basics of Milk | | | Total Number of Questions | 70 | 35 |

4. Course Curriculum with Corresponding Online Written Exam Questions

The course curriculum is set forth below and is divided into Sections, Topics and Objectives. In some areas of the curriculum, the creators may have revised the curriculum in order to create a more logical, level-appropriate structure. Any revisions are noted in 2. *Course Description and Updates*.

All online written exam questions were developed as an assessment for a specific objective. These questions have been grouped according to topic. All questions within a topic are considered the topic “pool.” From this pool, a certain number of questions will be randomly selected and presented to the learner. If a particular topic has more than one objective, there is a possibility that the learner will not be tested on all objectives in the topic. This is due to the randomization of the questions from that topic.

Also included in the curriculum are notes for the ASTs that help explain the content and how to achieve the objectives.

2.01 | Section | COFFEE BEANS 5 Topics

| Topic | Sub-Topic | Objectives | AST Notes | Online Written Exam Questions | Resources |
|---------------------------------|-----------|--|--|--|--|
| 2.01.01 Arabica Varieties | | 1. Name at least two Arabica varieties | Typica and Bourbon are the two parent varieties of commercially sold coffee. | Question ID: 0000000007573393 Select the answer which contains two common arabica varieties. Typica, Bourbon Panama, Pacas Ethiopia, Geisha Colombia, Robusta | World Coffee Research, <i>Arabica Coffee Varieties</i> Hoffmann, J. <i>The world atlas of coffee</i> , 22-25 Moldvaer, Anette. <i>Coffee Obsession</i> , 14-15 |
| | | | | Question ID: 0000000007599034 Type in the name of a popular variety of arabica. Please make sure there is no space after the name. bourbon, typica, catimor, catuai, caturra, geisha, gesha, harrar, java, maragogipe, sarchimor, mibirizi, mundo nova, pacamara, pacas, SL28, SL34, SL14, villa sarchi, kona, kent, blue mountain, java, mokka, mocha, K7, pache, tekisic, castillo, colombia, icatu, ruiru, yirgacheffe, batian | Folmer, Britta, and Imre Blank. <i>The Craft and Science of Coffee</i> , 7 Illy & Viani, <i>Espresso Coffee</i> , 31-32 |

| | | | | | |
|--|--|--|---|---|---|
| 2.01.02 Origin's Impact on Flavor | | 2. Describe the common flavor profile of coffees from different geographical locations | Geographical origins to be referenced: <ul style="list-style-type: none"> Africa (e.g. Ethiopia) South America (e.g. Brazil) Asia (e.g. Indonesia) | Question ID: 0000000007573394 What historically is the most typical flavor associated with Brazil arabica coffee? Nutty & Chocolate Floral & Fruity Citric Spicy | Moldvaer, Anette. <i>Coffee Obsession</i> , 56-123 Hoffmann, J. <i>The world atlas of coffee</i> , 118-247 Stephenson, T., <i>The curious barista's guide to coffee</i> , 186-197 |
| | | | | Question ID: 0000000007573396 Match the coffee origins with the most appropriate flavor description, most historically typical to that area. (A) Ethiopia (B) Brazil A = floral, blueberry B = nutty, chocolate | |
| | | | | Question ID: 0000000007573395 What is historically the most typical flavor associated with Ethiopia arabica coffee? Nutty & Chocolate Floral & Fruity Earthy Spicy | |
| 2.01.03 Processing Methods and Their Impact on Flavor & Body | | 1. Describe how different processing methods affect coffee flavor and body | Concepts to cover: <ul style="list-style-type: none"> Washed processing: the coffee will typically have a higher perceived acidity & a lighter body | Question ID: 0000000007573397 An espresso tasted highly acidic with a light body; what is the most likely processing method of this coffee? Pulped natural Washed Natural | |

| | | | | | |
|---|------------------------------|---|--|---|--|
| | | | <ul style="list-style-type: none"> Pulped natural processing: the coffee will typically be between the profiles of the other two methods Natural processing: the coffee will typically have a lower perceived acidity & a heavier body | <p>Question ID: 0000000007577000 An espresso tasted sweet and fermented with a heavy body; what is the most likely processing method of this coffee?</p> <p>Pulped natural Washed Natural</p> <p>Question ID: 0000000007573398 Select the answer that best completes the following statement. A natural processed coffee would typically have _____ body, compared to a washed processed coffee that is otherwise identical.</p> <p>a heavier a lighter the same</p> <p>Question ID: 0000000007573399 Select the answer that best completes the following statement. A washed processed coffee would typically have _____ body, compared to a naturally processed coffee that is otherwise identical.</p> <p>a heavier a lighter the same</p> | <p>Folmer, Britta, and Imre Blank. <i>The Craft and Science of Coffee</i>, 55-63</p> <p>Hoffmann, J. <i>The world atlas of coffee</i>, 31-37</p> |
| 2.01.04 Roast Degree's Impact on Coffee Solubility & Density | 2.01.04.01 Solubility | 1. Recognize the influence of roast degree on a coffee's potential solubility | | <p>Question ID: 0000000007574885 Keeping all other parameters the same, which of the roast degrees listed below would have a higher extraction yield when making an espresso?</p> <p>Light roast coffee Dark roast coffee Medium roast coffee</p> | Samo Smrke, Marco Wellinger, Tomonori Suzuki, Chahan Yeretian, <i>Carbon dioxide degassing from coffee and impact on freshness and espresso extraction</i> , SCA |

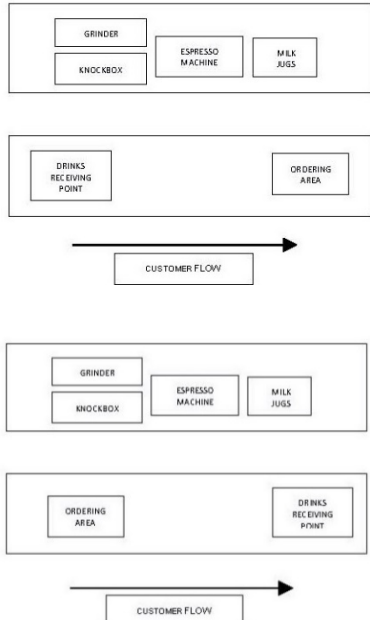
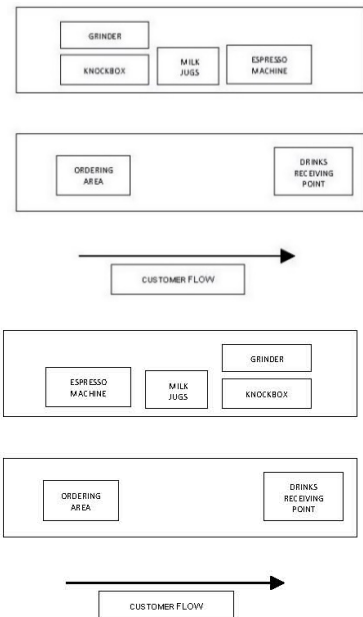
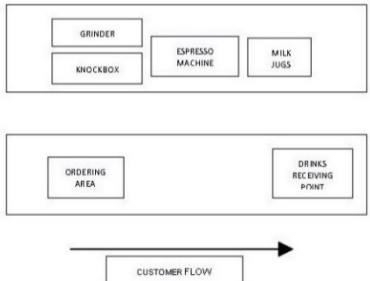
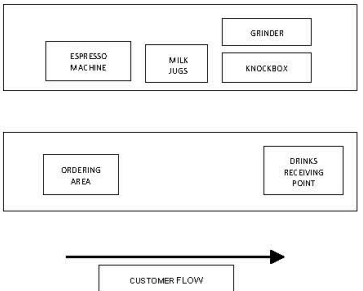
| | | | | | |
|--|--|--|--|---|--|
| | | | | <p>Question ID: 0000000007574886 Select the answer that best completes the following statement. Keeping all other parameters the same, a light roast will _____ a medium roast.</p> <p>be less soluble than be more soluble than be equally soluble as</p> | SCAA & Lingle, <i>The Coffee Brewing Handbook</i> , 25 |
| | 2.01.04.02 Density | 1. Recognize how roast degree can change the density to volume ratio of a coffee | | <p>Question ID: 0000000007574888 Assuming the same coffee, what are the characteristics of dark roasted coffee compared to a light roasted coffee?</p> <p>The beans are larger and less dense The beans are smaller and more dense The beans are smaller and less dense</p> | Illy & Viani, <i>Espresso Coffee</i> , 182, 191 |
| | | | | <p>Question ID: 0000000007574889 Select the answer that best completes the following statement. A light roasted coffee will have _____ a medium roast of the same coffee.</p> <p>a higher density than a lower density than the same density as</p> | Hoffmann, J. <i>The world atlas of coffee</i> , 69 |
| 2.01.05 Degassing of Roasted Coffee | 2.01.05.01 Degassing and Its Effect on Solubility | 1. Explain degassing of freshly roasted coffee and how it relates to solubility | | <p>Question ID: 0000000007574890 What is meant by the degassing of fresh roasted coffee?</p> <p>A percentage of carbon dioxide escaping from the bean after roast A percentage of oxygen escaping from the bean after roast A percentage of nitrogen escaping from the bean after roast</p> | |

| | | | | | |
|---|--|--|---|---|---|
| | | | | <p>Question ID: 0000000007574896 What is the most appropriate description of an espresso made with coffee that was roasted that same day?</p> <p>Large foamy crema and astringent Dense smooth crema and sweet Very little crema and bitter No crema and sour</p> | <p>SCA, <i>The Coffee Freshness Handbook</i>, 8, 62</p> <p>Folmer, Britta, and Imre Blank. <i>The Craft and Science of Coffee</i>, 331,345, 401</p> |
| 2.01.05.02 Packaging and Temperatures Effect on Degassing | 1. Describe how rate of degassing is influenced by packaging and storage temperature | | <p>Question ID: 0000000007574897 What packaging material would allow roasted coffee to oxidize most quickly (assuming a sealed bag)?</p> <p>Plastic Foil Paper</p> | <p>Illy & Viani, <i>Espresso Coffee</i>, 230-255</p> | |
| | | | <p>Question ID: 0000000007574898 Select the answer that best completes the following statement. A coffee stored at a cool temperature will degas _____ a coffee stored in a hot environment.</p> <p>faster than at the same rate as slower than</p> | | |
| | | | | | |
| | | <p>ACTIVITY Taste differences in espresso brewed with coffee that was roasted 3-7 days ago compared to 2-3 months ago</p> | | | |




2.02 | Section | WORKSPACE MANAGEMENT AND WORKFLOW

2 Topics

| Topic | Objectives | AST Notes | Online Written Exam Questions | Resources |
|--|---|--|--|-----------|
| 2.02.01 Efficient Coffee Equipment and Accessories Layout | 1. Describe in which order to place equipment and accessories to achieve efficient workflow | <p>Example:</p> <ul style="list-style-type: none"> ordering area- register/till grinder(s) knock box & tamping area espresso machine milk jugs/rinser & milk fridge | <p>Question ID: 0000000007574900</p> <p>Place the following in the correct order to maximize workflow efficiency (in the direction of the customer flow)? Order is randomized each time learner takes exam)</p> <ol style="list-style-type: none"> 1. Ordering area 2. Grinder(s) 3. Knock box & tamping area 4. Espresso machine 5. Milk jugs/rinser & milk fridge 6. Drink receiving point | |

| | | | | |
|---|--|---|---|--|
| | | <ul style="list-style-type: none">• drink receiving point | <p>Question ID: 0000000007574899 Choose the correct arrangements for the espresso bar for achieving the most efficient workflow.</p> <p>A.</p>  <p>B.</p>  <p>C.</p>  <p>D.</p>  | |
| 2.02.02 Working in Pairs | 1. Demonstrate ability to work in pairs to produce multiple drinks with efficiency and quality | | <p>Question ID: 0000000007574901 When two baristas work in a pair together, what is the most efficient division of labor for speed of service?</p> <p>They work independently on separate orders. One barista prepares espresso while the other steams milk and pours the drinks. One barista completes all espresso-based drinks while the other cleans.</p> | Rao, <i>The Professional Barista's Handbook</i> , 64 |
| | | ACTIVITY: Have one barista on espresso and one on milk preparing a coffee order | | |

2.03 | Section | ESPRESSO PROCESS: GRIND, DOSE, TAMP 2 Topics

| Topic | Objectives | AST Notes | Online Written Exam Questions | Resources |
|--|---|--|--|---|
| 2.03.01 Impact of Grinder Models & Burrs Types on Retention & Flow Rate | 1. Understand that different grinder models operate differently regarding speed & retention of coffee 2. Recognize different burr types and how they operate (e.g. flat and conical) 3. Describe and predict changes to the flow rate (shot time) of an espresso extraction due to heating of the burrs | Differences may occur between dosing methods and individual grinder design | Question ID: 0000000007574902 When referring to the grinder, what is meant by “retention”? How long the grinder remains at the same temperature between doses How much ground coffee remains in the grinder between doses How long it takes to grind a dose of coffee | SCAA & Lingle, <i>The Coffee Brewing Handbook</i> , 26 Stephenson, T., <i>The curious barista's guide to coffee</i> , 87, 92 Illy & Viani, <i>Espresso Coffee</i> , 218 Folmer, Britta, and Imre Blank. <i>The Craft and Science of Coffee</i> , 315-322 |
| | | | Question ID: 0000000007574903 Label these pictures with the correct names: Flat burr, conical burr, roller grinder. <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> A. Flat Burr  </div> <div style="text-align: center;"> B. Conical Burr  </div> </div> <div style="text-align: center; margin-top: 20px;">  </div> <div style="text-align: center; margin-top: 10px;"> C. Roller Grinder </div> | |

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|---|---|--|---|--|
| | | | <p>Question ID: 0000000007574904</p> <p>How would you expect the flow rate of a shot from a hot grinder (40C) to be different to the flow rate of a shot from the same grinder at (20C), assuming no other changes?</p> <p>It has no effect on the flow rate.</p> <p>The espresso flow would be faster.</p> <p>The espresso flow would be slower.</p> | |
| 2.03.02 Consistent Dosing, Distribution and Tamping Techniques | 1.Demonstrate consistent technique in dosing, distributing and tamping | Explain that the tamper should fit accurately in the portafilter basket to minimize risk of channeling | <p>Question ID: 0000000007574905</p> <p>Is the following statement true or false? Firmly tamping the coffee is more important in preventing channeling than good distribution of the coffee in the portafilter.</p> <p>True</p> <p>False</p> | T. Suzuki, Samo Smrke, Marco Wellinger, <i>Research presentation AST Live</i> , 2016 |
| | 2.Describe how consistency in dosing, distributing and tamping impacts taste and efficiency | | <p>Question ID: 0000000007574906</p> <p>How could an espresso extraction be affected if distribution and tamping was performed badly?</p> <p>It would not affect the extraction and flavor</p> <p>Increased channeling could occur, leading to unbalanced extraction</p> <p>Overall extraction could increase, leading to a bitter taste</p> | |
| | 3. Understands channeling and how it is caused | <p>ACTIVITY:</p> <p>Learner identifies channeling with a bottomless or double spouted portafilter</p> | | |
| | | | | Hoffmann, J. <i>The world atlas of coffee</i> , 97 |
| | | | | Colonna-Dashwood, M., <i>The Coffee Dictionary</i> , 52 |

2.04 | Section | EXTRACTION AND BREWING



4 Topics

| Topic | Sub-Topic | Objectives | AST Notes | Online Written Exam Questions | Resources |
|---|------------------------------|---|--|---|---|
| 2.04.01 Calculation and Expression of Brew Ratio & Espresso Brew Formula (EBF) | | 1. Calculate & express brew ratio of a given espresso recipe 2. Calculate & express EBF of a given espresso recipe | Concepts to cover: <ul style="list-style-type: none"> • brew ratio calculation: yield / dose • brew ratio is expressed as dose: yield • EBF calculation: (dose/yield) x 100 • EBF is expressed as a percentage (%) | Question ID: 0000000007574907 You make a double espresso with a dose of 16g of ground coffee, and a yield (liquid out) of 40g. What is the Espresso Brew Formula? 50% 33% 40% 67% | SCAA & Lingle, <i>The Coffee Brewing Handbook</i> , 10 SCA, <i>European Extraction Preferences in Brewed Coffee</i> Vince Fedele, <i>Advances in the state of the art – and science – of espresso</i> |
| | | | | Question ID: 0000000007574908 An espresso is made with 17 grams of ground coffee and a yield (liquid out) of 34g. What is the brew ratio (and Espresso Brew Formula Percentage)? 1:2 1:3 1:2.5 1:1.5 | |
| 2.04.02 Strength and Extraction in Espresso Brewing | 2.04.02.01 Espresso Strength | 1. Explain strength of an espresso using Total Dissolved Solids (TDS) | Strength of an espresso means the concentration of the Total Dissolved Solids (TDS) present in the cup | Question ID: 0000000007574909 What information does a refractometer provide? Coffee color Acidity Total Dissolved Solids (TDS) % Extraction yield | Rao, <i>The Professional Barista's Handbook</i> , 43 Stephenson, T., <i>The curious barista's guide to coffee</i> , 77 SCAA & Lingle, <i>The Coffee Brewing Handbook</i> , 10 |
| | | | | Question ID: 0000000007574910 What is the measurement for the strength of an espresso? Extraction % Roast level Bitterness Total Dissolved Solids (TDS) % | |

| | | | | | |
|--|---|---|--|--|--|
| | 2.04.02.02 Espresso Extraction | 2. Explain & calculate espresso extraction | Extraction means how much of the coffee dose has been extracted during brewing, usually expressed as a percentage $(YIELD \times TDS) / DOSE = EXTRACTION \%$ | <p>Question ID: 0000000007574911 You make a double espresso with a dose of 17g of ground coffee, and a yield (liquid out) of 34g. You measure the TDS at 10%. Using the formula: $(YIELD \times TDS) / DOSE = EXTRACTION \%$ What is the indicated extraction %?</p> <p>18% 20% 22% 24%</p> | |
| | | | | <p>Question ID: 0000000007651412 What does the following formula calculate? $(YIELD \times TDS) / DOSE = \underline{\hspace{2cm}} \%$</p> <p>Brew Ratio Extraction Caffeine content Brew strength</p> | |
| 2.04.03 Use of A Refractometer | | 1. Understands how a refractometer is used in measuring strength of an espresso | | Practical activity | |
| 2.04.04 Brew Recipes Impact on Flavor and Body of the Same Coffee | | 1. Calibrate different brew recipes and differentiate their flavor and body | Specifically, learner should be able to dial in two (2) brew recipes (provided by the AST) that represents a 40% and 60% EBF (brew ratio of 2.5 and 1.67) | <p>Question ID: 0000000007574913 An espresso made from medium roast beans has an indicated 14% extraction. Which dominant taste would you consider most likely?</p> <p>Sweet Bitter Sour</p> | <p>SCAA & Lingle, <i>The Coffee Brewing Handbook</i>, 10</p> <p>Hoffmann, J. <i>The world atlas of coffee</i>, 101</p> |

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|--|--|--|---|--|
| | | | <p>Question ID: 0000000007574914 Two espressos, made from the same coffee beans, have been brewed to the following parameters: One at a brew ratio of 1:2.5 (EBF of 40%) One at a brew ratio of 1:1.67 (EBF of 60%) Which will likely have the heaviest body?</p> <p>A brew ratio of 1:2.5 (EBF of 40) A brew ratio of 1:1.67 (EBF of 60%) They will have the same body</p> | Rao, <i>The Professional Barista's Handbook</i> , 43 |
| | | | <p>ACTIVITY: After producing 2 espressos with suggested EBF, learners should:</p> <ul style="list-style-type: none"> a. Taste and describe the difference with reference to flavor & body between the 2 recipes b. Measure the strength of the 2 espressos using a refractometer under trainer supervision c. Calculate extraction using the formula: extraction % = (yield x TDS)/dose d. Observe the trainer who will demonstrate plotting on Brew Control Chart to find extraction | |

2.05 | Section | SENSORY 4 Topic

| Topic | Objectives | AST Notes | Online Written Exam Questions | Resources |
|---|---|---|---|--|
| 2.05.01 Different Compounds and Flavors Extracts at Different Rates | 1. Identify by taste the production order of an espresso split into 3 parts | | <p>Question ID: 0000000007574915</p> <p>Match the most appropriate tastes to the parts of the espresso labelled in the picture below.</p> <div><div>A</div><div>B</div><div>C</div></div> <p>A = Sour/salty B = Sweet C = Bitter</p> | Marco Wellinger, Samo Smrke, Patrick Früh, Paul Schlauri, MizueKishigami, Chahan Yeretzian, <i>Tracking your extraction TDS, acidity and brewing chart</i> Folmer, Britta, and Imre Blank. <i>The Craft and Science of Coffee</i> , 364 - 365 |
| | | | <p>Question ID: 0000000007574916</p> <p>Match the most appropriate descriptions of body to the parts of the espresso labelled in the picture below.</p> <div><div>A</div><div>B</div><div>C</div></div> <p>A = Heavy Body B = Medium Body C = Light Body</p> | |
| | | <p>MANDATORY ACTIVITY:</p> <p>Learner should be able to describe taste of a double espresso split in 3 parts, as following:</p> <p>a. The first 12-14g = sour/salty/heavy body</p> <p>b. The second 12-14g = relatively sweet/medium body</p> <p>c. The third 12-14g = bitter/light body</p> | | |

| | | | | |
|--|--|---|--|---|
| 2.05.02 Relationship Between Taste & Flavor Development | 1. Identify general taste and flavor of: - under-extracted - over-extracted - balanced espressos | MANDATORY ACTIVITY: Learner can identify by taste: a. The sourness of under-extracted espresso b. The heightened bitterness of an over-extracted espresso c. The balance of flavors achieved with a balanced extraction in an espresso | | |
| 2.05.03 SCA Flavor Wheel Terminology for Description of Aroma & Flavor Attributes of Espresso | 1. Use the SCA Flavor Wheel to define at least one aroma descriptor & one flavor descriptor of an espresso | | <p>7 Question ID: 0000000007599038 Name a flavor that falls within the "Fruity" sector of the SCA Flavor Wheel. Type the name in the blank provided. Make sure there is no space after the word typed in the blank.</p> <p>Blackcurrent, Raspberry, Blueberry, Strawberry, Raisin, Prune, Coconut, Cherry, Pomegranate, Pineapple, Grape, Apple, Peach, Pear, Grapefruit, Orange, Lemon, Lime</p> <hr/> <p>Question ID: 0000000007574917 Which ring of the flavor wheel represents the most specific types of flavor notes?</p> <p>Inner ring Middle ring Outer ring</p> | SCA, <i>Coffee Taster's Flavor Wheel</i> |
| 2.05.04 Body & Texture of an Espresso | 1. Describe the body & texture of an espresso | <p>Body = given weight that is perceived on the tongue i.e.: light / medium / heavy</p> <p>Texture = sensory experience of the liquid as coats the tongue i.e.: juicy / creamy / honey / thin / watery</p> | <p>Question ID: 0000000007574918 What is the most appropriate definition of body in coffee?</p> <p>The perceived weight on the tongue A sense of dryness that follows swallowing a coffee The lingering flavors left after an espresso has been consumed.</p> <hr/> <p>Question ID: 0000000007574919 Which of the following terms would NOT be considered a description of texture (mouthfeel) in coffee?</p> <p>Juicy Creamy Watery Acidic</p> | <p>Illy & Viani, <i>Espresso Coffee</i>, 342</p> <p>World Coffee Research <i>Sensory Lexicon: Unabridged Definitions and References</i></p> |

2.06 | Section | MILK

6 Topics

| Topic | Sub-Topic | Objectives | AST Notes | Online Written Exam Questions | Resources |
|---------------------------|--|---|-----------|--|---|
| 2.06.01 Basics of Milk | 2.06.01.01 Milk Composition | 1. Describe the composition of milk with regards to protein/ fat/ lactose | | Question ID: 0000000007599039 Milk is made up of a number of components. Which one makes up the largest percentage? Protein Fat Water Lactose | Harold McGee, <i>Food & Cooking an Encyclopedia of Kitchen Science, History and Culture</i> , 13-20 H.-D. Belitz, <i>Food Chemistry</i> , 501-517 |
| | | | | Question ID: 0000000007599040 What fat percentage is normally found in whole (full fat) cow milk? 1-2% 3-5% 6 - 8% 16-18% | |
| | 2.06.01.02 Foam Quality and Stability | 1. Understand the function of protein and fat on the quality and stability of the foam (drainage) | | Question ID: 0000000007599041 Which ingredient in milk is essential to create foam? Lactose Protein Fat Calcium | Stephenson, T., <i>The curious barista's guide to coffee</i> , 116-117 Harold McGee, <i>Food & Cooking an Encyclopedia of Kitchen Science, History and Culture</i> , 26-27 |
| | | | | Question ID: 0000000007599042 How does whole milk (4% fat) differ from skimmed/non-fat milk when producing textured foam? a. Whole milk will be more difficult to create properly textured foam b. 0% fat milk will produce softer foam and better latte art c. Whole milk foam will keep structure and texture longer | |

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| 2.06.02 Milk Substitutes | | 1. Understand the role of protein content in milk substitutes | | <p>Question ID: 000000007574927 What ingredient would need to be added, or be originally present, in plant-based milks to enable it to foam?</p> <p>Lactose Protein Fat Calcium</p> | Verduci E, D'Elis S, Cerrato L, et al. <i>Cow's Milk Substitutes for Children: Nutritional Aspects of Milk from Different Mammalian Species, Special Formula and Plant-Based Beverages</i> |
| | | | | <p>Question ID: 000000007574928 The absence of what ingredient in plant-based milks would limit its ability to foam?</p> <p>Lactose Protein Fat Calcium</p> | |
| | | | | <p>Question ID: 000000007574929 Is the following statement true or false? Without additional protein being added, many non-dairy milks, such as almond and oat, would demonstrate poor foaming ability.</p> <p>True False</p> | |
| | | 1. Demonstrate foaming of milk substitutes | For example: Soy, rice, almond, oat | Practical activity | |

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| 2.06.03 Causes of Milk Deterioration | | 1. Describe the deterioration of milk through fats and proteins | Discuss the following: <ul style="list-style-type: none"> Bacterial activity increases acidity in milk. Eventually proteins and fats will break down, making the milk unusable on hygiene grounds. Milk will not foam at this point The acidity of an espresso often causes non-dairy milks to curdle. Examples of deterioration: <ul style="list-style-type: none"> - related to the age of the milk - related to milk being stored in high temperatures | Question ID: 0000000007574930 What is the estimated shelf life of fresh pasteurized milk, assuming it has been properly stored at all times? 3 days 12-18 days 1 month 3 - 6 months | Moldvaer, Anette. <i>Coffee Obsession</i> , 51 Bylund, G., <i>Dairy processing handbook</i> Wong, N. and Jenness, R., <i>Fundamentals of dairy chemistry</i> |
| 2.06.04 Milk Foaming Technique | 2.06.04.01 SCA Foam Standard | 1. Recognize and produce consistently high-quality micro- foam (Level 2 or above on the SCA Barista Foam Standards) | | Tested on Practical Exam | SCA, <i>Barista Foam Standards</i> WBC, <i>Rules and regulations</i> WLAC, <i>Rules and regulations</i> |
| | 2.06.04.02 Desirable Milk Heating Temperature | 1, Achieve the desirable range of temperature of 55°C- 65°C (131°F -149°F) in all drinks produced | Temperatures are measured in the cup, not the pitcher | | Stephenson, T., <i>The curious barista's guide to coffee</i> , 116 |

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| | 2.06.04.03 Maximum Milk Heating Temperature | 1. Understand that the maximum temperature milk is heated to should be 70°C/158°F | | Question ID: 0000000007576977 What is the maximum final milk temperature SCA recommends for steaming? 55°C/131°F 62°C/144°F 70°C/158°F 80°C/176°F | Moldvaer, Anette. <i>Coffee Obsession</i> , 50 Kamatha S,Huppertz T, Houlihan A.V, Hilton C, Deeth H.C <i>Influence of temperature on the foaming of milk</i> |
| | | | | Question ID: 0000000007576978 Why is 70°C/158°F advised as the maximum temperature to heat milk? The milk starts to separate into solids and liquid The proteins in the milk are denaturing, giving an undesirable flavor and smel The sugars in the milk start to burn | Oetjen, K, Bilke-Krause C, Madani M, Willer T, <i>Temperature effect on foamability, foam stability, and foam structure of milk Colloids and Surfaces</i> |
| 2.06.05 Pitcher/Jug Sharing | | 1.Demonstrate the ability to create drinks through pitcher/jug sharing, as well as foaming independently for each drink. 2.Understand the speed and quality advantages of each | ACTIVITY Learner to practice correct steps for pitcher/jug sharing: <ul style="list-style-type: none">- Foam milk in pitcher 1- Pour some foam into pitcher 2- Pour first drink from pitcher 1- Pour foam from pitcher 2 back into pitcher 1- Pour second drink from pitcher 1 | | |
| 2.06.06 SCA Latte Art Standards - Free Pour | | 1. Demonstrate ability to free pour two latte art patterns to reasonable SCA Latte Art Standards | Tested on Practical Exam | | |

2.07 | Section | ESPRESSO BASED MENU

2 Topic

| Topic | Objectives | AST Notes | Online Written Exam Questions | Resources |
|---|---|---|---|------------------------------|
| 2.07.01 Espresso-Based Drinks Range | 1. Describe construction beverages in SCA Drinks Standard 2. Describe the difference in taste/ body / espresso concentration between the types of drinks | Concepts to cover: a. Smaller volume espresso and milk beverages will have a higher perceived intensity of coffee flavor b. As the milk to espresso ratio increases, the lower the perceived intensity of coffee flavor will be | Question ID: 0000000007574936 What is the most common difference between a Cappuccino and Latte? The number of espresso shots The ratio of steamed milk, foam and espresso The size of the drink | SCA, Barista Drinks Standard |
| | | | Question ID: 0000000007574937 Place the following drinks in order, starting with the drink that contains the least milk, to the drink that contains the most milk, relative to espresso. Double Espresso (1) Caffe Macchiato (2) Cappuccino (3) Caffe Latte (4) | |
| | | | Question ID: 0000000007574938 Is the following statement true or false? According to the SCA Drinks Standards, a Cappuccino will have a higher perceived intensity of coffee flavor compared to a Caffe Latte? True False | |
| 2.07.02 Preparing Multiple Beverages to SCA Drinks Standards | Demonstrate ability to prepare an order of 4 drinks from specific list and within a specific time to SCA Drinks Standards | | Tested on Practical Exam | |

2.08 | Section | CLEANING, HEALTH AND SAFETY

6 Topics

| Topic | Sub-Topic | Objectives | AST Notes | Online Written Exam Questions | Resources |
|---|--|---|---|---|--|
| 2.08.01 Stock Management | 2.08.01.01 Stock Rotation | 1. Understand how stock rotation needs to be practiced in all storage areas | FIFO (first in first out) Food storage method | <p>Question ID: 0000000007574941 Is the following statement true or false? Milk should be stored and used in a first in/last out policy.</p> <p>True False</p> | <p>Local hygiene legislation</p> <p>Control of Substances Hazardous to Health (COSH) legislation</p> |
| | 2.08.01.02 Storage Temperatures | <p>1. Understand how operating temperature of the refrigerator(s) is checked and maintained at legal level</p> <p>2. Understand that milk must be kept in the</p> | | <p>Question ID: 0000000007576921 What is the appropriate temperature of a fridge for storing fresh pasteurised milk?</p> <p>0°C (32°F) 4- 5°C (39 - 41°F) 7 - 8°C (44 - 46.5°F) 20 - 21°C (68 - 69°F)</p> | |

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| | | refrigerator when not in use | | <p>Question ID: 0000000007576922 Which is an example of best practice in a café to avoid milk waste?</p> <p>Keeping track of usage and purchasing appropriate amount of milk required</p> <p>Buying milk that is on sale and freezing it to defrost when needed</p> <p>Leaving the open container of milk on the counter for quick access by the barista</p> | |
| 2.08.02 Personal Hygiene | | <p>1. Describe when and why handwashing is necessary</p> <p>2. Understand the need to keep a clean apron & work clothing</p> | | <p>Question ID: 0000000007576924 To prevent cross contamination, when does a barista need to wash their hands?</p> <p>After coughing or sneezing After handling dirty dishes After eating All of the above</p> | |
| | | | | <p>Question ID: 0000000007576926 Why would it be necessary for a barista to wear an apron when working behind the bar?</p> <p>A. To protect their own clothes B. To avoid cross contamination C. So the barista can dry their hands when wet D. Both A & B</p> | |
| 2.08.03 Preventing Cross Contamination | | 1. Identify and describe correct procedures to prevent cross contamination | <p>Discuss the following:</p> <ul style="list-style-type: none"> How to use color coded wipes for different purposes: dairy milk/ nut milk/ espresso machine/ counter | <p>Question ID: 0000000007576928 It is recommended that baristas use a minimum of three different cloths when preparing espresso-based drinks; what would be the most appropriate use of them?</p> <p>For the drying pitchers, counter, steam wand For the portafilter, drying pitchers, counter For the counter, hand drying, steam wand For the counter, portafilter, steam wand</p> | |

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| | | | <ul style="list-style-type: none"> The risks of nut milk as an allergen Why it is important to store cleaning chemicals away from foods Why it is important to flush cleaning chemicals from espresso machine and grinder properly | <p>Question ID: 0000000007576929 What is the recommended method for rinsing out cleaning chemicals from the espresso machine?</p> <p>Backflush group head with clean water until detergent is rinsed out</p> <p>Use a clean cloth dipped in clean water to wipe group head</p> <p>There is no need to rinse out the chemicals</p> <p>Scrub shower with group head brush</p> | |
| 2.08.04 Preventing Accidents and Strain Injuries | | 1. Identify and describe correct procedures to prevent accidents and repetitive strain injuries | <p>ACTIVITY: Learner to</p> <ul style="list-style-type: none"> Demonstrate correct and safe techniques when using steam and hot water from the espresso machine Demonstrate safe practices when cleaning around the blades in the grinder Demonstrate correct and safe techniques for tamping | | |
| 2.08.05 Grinders Cleaning & Maintenance | | 1. Describe hygiene and operational issues related to the grinder | <p>Discuss identifying:</p> <ul style="list-style-type: none"> Worn grinder blades, and possible implications Blockages related to not properly cleaning the grinder chamber | <p>Question ID: 0000000007576930 What should be the first step when checking a grinder for an object (foreign matter) stuck in the burrs/blades?</p> <p>Disconnect the grinder from electricity Take off the hopper Unscrew the top of the grinder Unscrew the top burr/blade from the body of the grinder</p> | |
| | | | | <p>Question ID: 0000000007576931 A grinder is overheating, and hard to calibrate. What is the most likely cause?</p> <p>The grind is set too fine The grinder burrs/ blades may be worn Dirt may be built up around the burrs The hopper slide is closed</p> | |

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| 2.08.06 Espresso Machine Cleaning & Maintenance | | 1. Describe regular cleaning & maintenance requirements for espresso machines 2. Identification and maintenance of high use areas of the espresso machine. | <p>Concepts to cover:</p> <ul style="list-style-type: none"> How regularly cleaning the espresso machine creates beverages that taste good, protects the long-term health of the equipment, and maintains a positive image to customers Cleaning steps outlined in Appendix A.02 <p>Identify:</p> <ul style="list-style-type: none"> Worn group seals and possible implications Worn washers on steam valves and possible implications- blockages of drip tray, drain tubes. | <p>Question ID: 0000000007576932 What is the most probable reason if the steam wand starts to leak from around the tip?</p> <p>Boiler malfunction The holes in the steam tip are clogged There's a problem with the rubber gasket in the steam wand</p> | Appendix A.01.03 Daily cleaning Hoffmann, J. <i>The world atlas of coffee</i> , 102-103 Freeman, J., Freeman, C., Duggan, T., McLachlan, C. and Ott, M., <i>The Blue Bottle craft of coffee</i> . |
| | | | | <p>Question ID: 0000000007576933 When a shot is made, water escapes from the grouphead and runs down the outside of the portafilter/group handle. The portafilter is correctly and firmly locked into the group head. What is the most likely problem?</p> <p>The group seals are worn and need replacing The single handle has been inserted instead of the double The showers in your group heads are blocked The pump pressure is too strong</p> | |
| | | | | <p>Question ID: 0000000007576934 Dirty water is leaking from underneath the espresso machine. What would be the most likely problem?</p> <p>The waste pipe is blocked, and the drip tray drain box is overflowing There is a leak from the boiler The steam wands have come loose and are leaking There is a leak from the group heads</p> | |

2.09 | Section | WATER QUALITY

1 Topic

| Topic | Objectives | AST Notes | | Resources |
|--|---|-----------|-------------------------|--|
| 2.01.09 SCA Water Test & Guidelines | <p>1.Demonstrates ability to test water for Total Hardness using an appropriate method (drops or strips)</p> <p>2.Demonstrate ability to test water for Alkalinity using an appropriate method (drops or strips)</p> <p>3.Indicate if this water measured within the SCA Water Guidelines</p> | | Practical Exam activity | <p>Marco Wellinger, Samo Smrke & Chahan Yeretian, <i>The SCAE Water Quality Handbook</i></p> <p>Maxwell Colonnna-Dashwood & Christopher H. Hendon, <i>Water for Coffee</i></p> <p>SCAA & Lingle, <i>The Coffee Brewing Handbook</i>, 36-40</p> |

2.10 | Section | CUSTOMER SERVICE AND CAFÉ MANAGEMENT

4 Topic

| Topic | Objectives | AST Notes | Online Written Exam Questions | Resources |
|--|--|--|--|-------------------------------------|
| 2.10.01 Coffee Menu description | 1.Be able to describe to customers list of espresso beverages 2.Describe difference of espresso flavor concentration perceived in the different drinks from a coffee menu | Concepts to cover: <ul style="list-style-type: none"> Smaller volume espresso & milk beverages will have a higher perceived intensity of coffee flavour As the milk to espresso ratio increases, the lower the perceived intensity of coffee will be | AST to cover concept | SCA, <i>Barista Drinks Standard</i> |
| 2.10.02 Customer's Interaction | 2. Describe how to interact with customers with good service | Discuss: <ul style="list-style-type: none"> How to greet customers appropriately Appropriate body language, tone and attitude when communicating with customers | Question ID: 0000000007576935 When listening to a customer placing an order it is most important to do which of the following? Understand their specific needs Explain the different styles of coffee on offer Make their drinks as fast as possible Sell them additional items | |
| 2.10.03 Cost and Goods | 1. Understand costs involved in preparing and serving espresso beverages (cost of ingredients, including wastage) | Concepts to cover: <ul style="list-style-type: none"> Storing ingredients correctly to prevent spoilage Preparation techniques that minimize waste | Question ID: 0000000007651413 A barista wastes 2g of coffee each time they make a double shot, and they make on average 200 double shots /day, how much is this waste costing in a 7-day week, if the coffee costs \$20/kg? a. \$56 b. \$5.60 c. \$8 d. \$560 | |

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| | | | <p>Question ID: 0000000007651414 A barista wastes 80mls of milk each time they make a milk based drink. They make on average 100 milk drinks per day. How much is this waste costing in a 7 day week, if milk costs €2/L?</p> <p>a. €12 b. €112 c. €56 d. €224</p> | |
| 2.10.04 Service Recovery and Complaint Handling | 1. Describe the steps for handling customer complaints and service recovery | Steps: <ul style="list-style-type: none"> • Listen-hear what the customer has to say • Apologize - promptly and sincerely • Tell the customer what you are going to do - keep them informed of the action you are taking to improve the situation • Take action - take appropriate action to improve the situation • Evaluate - make sure that the customer is satisfied and look over the procedures in place at your place of work (record above steps if necessary) | <p>Question ID: 0000000007576936 Below are the actions one should take when handling customer complaints. Place them in the correct order.</p> <p>a. Evaluate-make sure the customer is satisfied (5) b. Tell the customer what actions are going to be taken (4) c. Apologize (2) d. Take action (3) e. Listen (1)</p> | |
| | | | <p>Question ID: 0000000007576937 What is the first step when dealing with a customer complaint?</p> <p>Listen to the customer Apologize Take action to resolve the problem</p> | |

5. Essential SCA Training Documents

- SCA Barista Foam Standards
- SCA Latte Art Standards
- SCA Barista Drink Standards
- SCA Coffee Taster's Flavor Wheel (English)
- SCA Water Chart

All documents are available at the AST Portal under Curriculum and Exams/Barista Skills.

6. Required Equipment and Supplies List

Available at the AST Portal under Resources/Venue Requirements.

Any items available in the SCA US or UK store are noted and a link directly to the store is provided.

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8. Appendices

Appendix A: SCA Barista Routines

| Name | Steps |
|-----------------------------------|--|
| A.01.01 Espresso | <ol style="list-style-type: none"> 1. remove portafilter from grouphead and flush grouphead 2. knockout spent grounds and wipe basket clean and dry 3. dose desired grams of coffee 4. distribute coffee to minimize risk of channeling 5. tamp consistently, level & ergonomically 6. clean loose grounds from portafilter surfaces 7. insert portafilter into the group head and start the pump immediately, as one continuous motion 8. observe the flow and stop pump appropriately 9. if no further drinks are being made, remove the portafilter, knock out spent grounds, clean filter and return to the grouphead to maintain temperature |
| A.01.02 Milk | <ol style="list-style-type: none"> 1. empty and clean pitcher before use 2. purge steam wand before foaming 3. wipe steam wand immediately after use 4. purge steam wand after wiping |
| A.01.03 Daily cleaning | <p>During the day:</p> <ol style="list-style-type: none"> 1. back flush and brush grouphead/ shower screen throughout the day 2. remove basket from portafilter and clean with hot water throughout the day <p>At the end of the day:</p> <ol style="list-style-type: none"> 1. empty and wipe the bean hopper 2. grind and discard the last of the coffee from the grinder and/or empty the doser- chamber and brush out all excess grounds 3. back flush grouphead with espresso machine detergent 4. brush shower screen and rinse grouphead with water until detergent is rinsed out 5. drop shower screen and soak in hot water and detergent, rinse thoroughly and reassemble 6. remove basket from portafilter and soak in hot water and detergent, rinse thoroughly and reassemble 7. clean steam wand thoroughly, checking the steam tip holes for milk residue 8. remove and clean the drip tray |

| Appendix B: SCA Brew Parameters | | |
|---|---|---|
| Name | Steps | Reference |
| B.02.01 SCA Brew Parameters for Espresso | <p>SCA suggested brew parameters:</p> <ul style="list-style-type: none"> • in: single shot 7-10g/ double shot 14-20g • out: single shot 10.5-25g/ double shot 21-50g • shot time: 20 – 30 seconds • brew ratio: 1:1.5 – 1:2.5 <p>Volumetric range (based on freshly roasted coffee up to 70 days after roast)</p> <ul style="list-style-type: none"> • out: single shot 25-35 ml (0.35/0.5 - 0.85/1 oz)/ double shot 50-60 ml (0.68/1 - 1.75/2.25 oz) | AST - Live - Carbon dioxide degassing from coffee and impact on freshness and espresso extraction; Samo Smrke, Marco Wellinger, Tomonori Suzuki, Chahan Yeretzyan |