



MASTERING THE ART AND CRAFT

baking and pastry

THIRD EDITION

the culinary institute of america

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THIRD EDITION

THE CULINARY INSTITUTE OF AMERICA



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CONTENTS

Recipe Contents vi

Preface xviii

PART ONE

THE PROFESSIONAL BAKER AND PASTRY CHEF

- 1 Career Opportunities for Baking and Pastry Professionals 2
- 2 Ingredient Identification 12
- 3 Equipment Identification 38
- 4 Advanced Baking Principles 60
- 5 Food and Kitchen Safety 76
- 6 Baking Formulas and Bakers' Percentages 90

PART TWO

YEAST-RAISED BREADS AND ROLLS

- 7 Yeast-Raised Breads and Rolls 104
- 8 Advanced Yeast Breads and Rolls 152

PART THREE

BAKING BUILDING BLOCKS

- 9 Pastry Doughs and Batters 220
- 10 Quick Breads and Cakes 252
- 11 Cookies 328

12 Custards, Creams, Mousses, and Soufflés 392

13 Icings, Glazes, and Sauces 462

14 Frozen Desserts 554

PART FOUR

ASSEMBLING AND FINISHING

15 Pies, Tarts, and Fruit Desserts 616

16 Filled and Assembled Cakes and Tortes 668

17 Breakfast Pastries 730

18 Individual Pastries 762

19 Savory Baking 818

20 Plated Desserts 858

21 Chocolates and Confections 902

22 Décor 976

23 Wedding and Specialty Cakes 1030

Appendix A Elemental Recipes 1064

Appendix B Décor Templates 1082

Appendix C Conversions, Equivalents, and Calculations 1084

Appendix D Readings and Resources 1086

Glossary 1090

Subject Index 1096

Recipe Index 1105

EULA

RECIPE CONTENTS

7 Yeast-Raised Breads and Rolls 104

Lean Dough 118
Bagels 119
Whole Wheat Lean Bread 121
Durum Rosemary Bread 122
Soft Roll Dough 123
Parker House Rolls 126
Pain de Mie 127
Grissini 128
Rye with Caraway Seeds for Pullman Loaves 130
 Rye Rolls with Caraway Seeds 131
Sunflower Seed Rolls 132
Wheat Pullman Loaves 134
Cheddar and Onion Rye Rolls 135
Naan 136
Lavash 137
Pita 138
Durum Pizza Dough 139
Challah (three-braid) 140
 Challah (six-braid) 141
Raisin Bread 143
Brioche 144
 Brioche Loaf 144
 Orange Brioche Dough 145
 Craquelin Dough 145
Craquelin 147
Cinnamon Swirl Bread 148
Yeast-raised Doughnuts 149
Jelly Doughnuts 150

8 Advanced Yeast Breads and Rolls 152

Multigrain Bread 160
Lean Dough with Pâte Fermentée 161
 Boule with a Cross 161
Lean Dough with Poolish 162
 Epi 164

Wheat Dough with Poolish 165
Walnut Fig Bread 166
Semolina Dough 167
Lean Dough with Biga 168
Ciabatta 170
Focaccia 172
Rosemary Bread 174
Wheat Sourdough Starter 175
Rye Sourdough Starter 176
Wheat Sourdough Bread 177
White Wheat Sourdough Bread 178
Apple and Walnut Sourdough Bread 179
Sourdough Bread with Rye Flour 180
Multigrain Sourdough 181
Chocolate Cherry Sourdough 182
Durum Sourdough Bread 183
Buttermilk Sourdough 184
Multigrain Rye Sourdough 185
Rustic Rye Sourdough 186
Vollkornbrot 187
Liquid Levain 190
Fougasse aux Olives 190
Pain Pugliese 192
Baseler Brot 194
Honey Challah 196
Panettone 198
Chocolate and Pecan Babka 199
Gugelhopf 200
Christmas Stollen 202
Soft Pretzels 204
Pita with Poolish 206
Naan with Biga 207
Filled Flatbread 208
Hot Cross Buns 209
Hot Cross Bun Topping 211
Bialys 212
Day of the Dead Bread 214
Conchas 216

Chocolate Concha Topping 217
Vanilla Concha Topping 218

9 Pastry Doughs and Batters 220

3-2-1 Pie Dough 231
Pâte Brisée 231
Chocolate Pâte Sucrée 232
1-2-3 Cookie dough 233
 1-2-3 Cookie Dough with Graham Cracker
 Crumbs 233
Savory Short Dough 234
Rich Short Dough 234
Chocolate Short Dough 235
Cornmeal Short Dough 236
Almond Paste Short Dough 237
Almond Dough 237
Walnut Crust 238
Pecan Crumble 238
Linzer Dough 239
Graham Cracker Crust 239
Pâte à Choux 240
 Chocolate Pâte à Choux 240
Crêpes 241
Strudel Dough 243
Butter Puff Pastry Dough 244
Inverse Puff Pastry 246
Blitz Puff Pastry 247
Croissant Dough 248
Danish Dough 249
Fig Newton Dough 250
Chocolate Beignets with Truffles 251

10 Quick Breads and Cakes 252

Ginger Cake 269
Strawberry Cake 270
Cream Scones 271
Buttermilk Biscuits 272
Pumpkin Quick Bread 273
Banana Bread 274
Zucchini Quick Bread 275
Old-Fashioned Pound Cake 276
 Lemon PoundCake 276
 Marble Pound Cake 276

Sour Cream–Streusel Pound Cake 278
Rum Cake 279
Lemon Buttermilk Cake 280
Polenta Cake 281
 Almond Polenta Cake 281
Marjolaine Sponge 282
Christmas Fruitcake 283
High-Ratio White Cake 284
 High-Ratio Yellow Cake 284
 High-Ratio Chocolate Cake 284
Devil's Food Cake 285
Angel Food Cake 287
Vanilla Sponge 288
 Chocolate Sponge 288
Flourless Chocolate Cake 289
Flourless 64% Chocolate Cake 291
Chocolate XS 292
Chocolate Truffle Torte 293
Carrot Cake 294
 Chocolate Beet Cake 294
Roulade 295
Chocolate Roulade 297
Chocolate Soufflé Cake 298
Dobos Sponge 299
Hazelnut Sponge Cake 300
Pistachio Sponge 301
Madeleine Sponge 302
Havana Cake 303
Flourless Sponge 304
Spanish Vanilla Cake 305
Chocolate Almond Cake 306
Coconut Joconde 307
Patterned Joconde Sponge 308
Joconde for Sticky Rice Entremet 310
Chiffon Sponge 311
 Lemon Chiffon Sponge 311
 Lime Chiffon Sponge 311
 Orange Chiffon Sponge 311
Chiffon 312
Chocolate Chiffon Sponge 313
Chocolate Chiffon 314
Milk Chocolate Chiffon 315
Green Tea Chiffon 316
Lemon Cake 317
Almond Apple Financiers 318
Almond Financiers 319

Caramelized Apple Financier 320
Apple Spice Cake 321
Dacquoise 322
Coconut Dacquoise 323
Almond Dacquoise 324
Soft Hazelnut Dacquoise 324
Dacquoise Meringue 325
Savarin 326
Biscuit Russe 327

11 Cookies 328

Chocolate Chunk Cookies 338
 Chocolate Cherry Chunk Cookies 338
 Chocolate Chunk Nut Cookies 338
Mudslide Cookies 339
Oatmeal Raisin Cookies 340
 Oatmeal Fruit Cookies 340
Brandy Snaps 341
 Sesame Brandy Snaps 341
Peanut Butter Cookies 342
Hermit Cookies 343
Pecan Diamonds 344
Cake Brownies 345
German Chocolate Brownies 346
Florentine Squares 347
Rugelach 348
 Chocolate Rugelach 349
Sugar Cookies 350
Linzer Cookies 351
Chestnut Biscuit 352
Citrus White Chocolate Sablés 353
Sablé Butter 354
Sablé Dough Crumbs 355
Sablée Breton 356
Shortbread Cookies 357
 Chocolate Shortbread 357
 Citrus Shortbread 357
 Hazelnut Shortbread 357
Vanilla Shortbread 358
Chocolate Cookies 359
Vanilla Kipferl 360
Russian Tea Cookies 361
Madeleines 362
Chocolate Madeleines 364
Springerle 365

Almond Anise Biscotti 366
Chocolate Biscotti 368
Almond Spritz Cookies 369
Anise Cookies 370
Coconut Macaroons 370
Coconut Rochers 371
Almond Macarons 372
Chocolate French Macarons 373
Coffee Macarons 375
Checkerboard Cookies 376
Pinwheel Cookies 377
Ribbon cookies 377
Ladyfingers 378
 Chocolate Ladyfingers 378
Chocolate Phyllo 379
Lace Nut Tuiles 380
Chocolate Tuiles 381
Banana Tuiles 382
Honey Tuiles 383
 Chocolate Honey Tuiles 383
Nougatine Tuiles 384
Apple Cider Tuiles 384
Chocolate Caramel Tuiles 385
Fig Tuiles 385
Blueberry Tuile 386
Meringue Sticks 386
Crispy Meringue 387
Green Tea Clusters 387
Peanut Crispy Base 388
Peanut Butter Cocoa Nib Crispy Base 388
Mousse/Crispy Chocolate 389
Coffee Crispy Base 389
Décor Biscuit 390
Décor Paste 390
Phyllo Dough Décor 391
Rustle 391

12 Custards, Creams, Mousses, and Soufflés 392

Crème Brûlée 402
 Cinnamon Crème Brûlée 402
 Chocolate Crème Brûlée 402
 Coconut Crème Brûlée 402
 Coffee Crème Brûlée 402

Pumpkin Crème Brûlée 404
 Cheesecake 405
 Chocolate Cheesecake 406
 Lemon Cheesecake 406
 Marble Cheesecake 406
 Pumpkin Cheesecake 406
 White Chocolate Cheesecake 406
 Walnut Cheesecake 407
 Mascarpone Cheesecake 408
 Goat Cheese Cheesecake 409
 Yogurt Cremeux 410
 Vanilla and Rosemary Cremeux 410
 Banana Cremeux 411
 Basil Cremeux 412
 Macadamia Cremeux 413
 Vanilla Cumin Cremeux 414
 Agar Mango Gelée 414
 Crème Caramel 415
 Crème Caramel with Grand Marnier 415
 Pots de Crème 416
 Pastry Cream 417
 Honey Pastry Cream 417
 Liqueur-Flavored Pastry Cream 417
 Coffee Pastry Cream 417
 Pistachio Cream 418
 Vanilla Pudding 419
 Chocolate Pudding 419
 Rice Pudding 420
 Bread and Butter Pudding 421
 Chocolate Bread Pudding 422
 Panna Cotta 423
 Chai Panna Cotta 423
 Cinnamon Panna Cotta 423
 Lemon Panna Cotta 423
 Tangerine Panna Cotta 424
 Fruit Curd 424
 Lemon Curd 425
 Grapefruit Curd 425
 Lime Curd 425
 Orange Curd 425
 Bergamot Orange Curd Spheres 426
 Plum Pudding 427
 Raspberry Mousse 428
 Pear Mousse 428
 Strawberry Mousse 428
 Mango Mousse 428
 Passion Fruit Mousse 428
 Apple Mousse 429
 Chocolate Mousse 430
 Coconut Mousse 430
 White Chocolate Mousse 430
 Milk Chocolate Chai Mousse 430
 Dark Chocolate Mousse 431
 Milk Chocolate Mousse I 432
 Milk Chocolate Mousse II 433
 White Chocolate Mousse Pâte à
 Bombe 434
 Coffee Mousse 435
 Dark Coffee Mousse 436
 Caramel Mousse 437
 Stabilized Whipped Cream 438
 Chocolate Caramel Bavarian 439
 Lemon Filling for Sheet Cakes 440
 Grapefruit Filling 440
 Cream Cheese Mousse 441
 Bavarian Cheese Mousse 442
 Mascarpone Mousse 443
 Pumpkin Cheesecake Mousse 444
 Chocolate Sabayon Mousse 445
 Mocha Mousse 445
 Green Tea Mousse 446
 Coconut Rice Mousse 447
 Chestnut Mont Blanc Filling 448
 Pistachio Mousseline 449
 Praline Mousseline 449
 Bavarian Cream 450
 Chocolate Bavarian Cream 450
 Lemon Bavarian Cream 450
 Liqueur Bavarian Cream 450
 Praline Bavarian Cream 450
 Raspberry Bavarian Cream 450
 Wine Bavarian Cream 450
 Yogurt Bavarian cream 451
 Diplomat Cream 452
 Orange Diplomat Cream 452
 Kirsch Diplomat Cream 452
 Strawberry Yogurt Bavarian 453
 Tiramisù Cream 454
 Sauternes Crème 454
 Italian Cream 455
 Passion Fruit Chibouste 456
 Lemon-Lime Chibouste 456

Pastry Cream for Soufflés 457
Chocolate Soufflé 458
 Cinnamon Soufflé 458
 Coffee Soufflé 458
 Grand Marnier, Kahlúa, Frangelico, or Amaretto Soufflé 458
 Lemon or Orange Soufflé 458
 Praline or Pistachio Soufflé 458
 Pumpkin Soufflé 458
 White Chocolate Soufflé 458
Raspberry Soufflé 460
Strawberry Terrine 461

13 Icings, Glazes, and Sauces 462

Common Meringue 475
Swiss Meringue 476
Italian Meringue 476
Chocolate Meringue 477
Swiss Meringue Disks 477
Vacherin (Swiss Meringue) 478
Vanilla Italian Meringue 478
Swiss Meringue Buttercream 479
Italian Buttercream 480
 Chocolate Buttercream 481
 Coffee Buttercream 481
 Hazelnut Buttercream 480
 Kirsch Buttercream 480
 Milk Chocolate Buttercream 480
 Mocha Buttercream 480
 White Chocolate Buttercream 480
French Buttercream 481
German Buttercream 481
Cream Cheese Icing 482
 Lemon Cream Cheese Icing 482
Chantilly Cream 482
 Cinnamon Chantilly Cream 482
 Coffee Chantilly Cream 482
Maple Whipped Cream 483
Soft Ganache 483
 Medium Ganache 483
 Soft Milk Chocolate Ganache 483
 Soft White Chocolate Ganache 483
Hard Ganache 484
Cinnamon Ganache 486
Peanut Butter Ganache 487
Chocolate Caramel Ganache 488
Soft Milk Chocolate Caramel 489
Milk Chocolate Glaze 489
Ultrashiny Chocolate Glaze 490
Dark Chocolate Glaze 490
Mirror Glaze 491
Spiced Mirror Glaze 491
Caramel Glaze 492
Apricot Glaze 492
Amaretto Glaze 493
Maple Glaze 493
Thread Glaze 493
Grapefruit Mirror Glaze 494
Mango Mirror Glaze 494
Chocolate Mirror Glaze 495
Green Mirror Glaze 495
Green Tea Glaze 496
White Sauce 496
Vanilla Sauce 497
 Cinnamon Sauce 497
 Coffee Sauce 497
 Lemon Sauce 497
 Peanut Butter Sauce 497
Sabayon 498
 Bourbon Sauce 498
 Calvados Sabayon 498
 Champagne Sabayon 498
 Framboise Sabayon 498
 Honey Sabayon 498
 Zabaglione 498
Raspberry Sabayon 498
Calvados Sabayon Sauce 499
Hot Fudge Sauce 499
Chocolate Fudge Sauce 500
Chocolate Sauce 500
Smoked Milk Chocolate Caramel Sauce 501
Caramel and Coffee Sauce 502
Raspberry Coulis 503
 Kiwi Coulis 503
 Mango Coulis 503
 Strawberry Coulis 503
Papaya Coulis 504
Blueberry Compote 505
Blueberry Bliss 505
Mint Sauce I 506
Mint Sauce II 506

Pineapple-Sage Coulis 507
 Plum Röster 508
 Raspberry Sauce 508
 Passion Fruit Sauce 509
 Coconut Sauce 509
 Papaya Sauce 509
 Raspberry Sauce II 509
 Citrus Sauce 509
 Orange Sauce 510
 Hot Strawberry Syrup 510
 Savarin Syrup 511
 Caramel Simple Syrup 512
 Banana Syrup 512
 Blood Orange Sauce 513
 Bergamot Posset 513
 Strawberry Tarragon Sauce 514
 Lime Rickey Sauce 514
 Chunky Strawberry Sauce 515
 White Pear and Huckleberry Sauce 516
 Coconut Ginger Sauce 517
 Lemon Verbena Sauce 518
 Burnt Orange Sauce 519
 Fruit Salsa 520
 Orange Marinade 520
 Fruit Soaker 521
 Raisin Sauce 521
 Dried Cherry Sauce 522
 Candied Cranberry Compote 523
 Fig Compote 523
 Poached Apple Compote 524
 Blueberry Compote 525
 Blackberry Sauce 525
 Cranberry Sauce 526
 Fruit Sangria Sauce 526
 Cider Bourbon Sauce 527
 Fig Butter 527
 Apple Butter 528
 Mango Butter 528
 Nectarine Butter 528
 Peach Butter 528
 Pear Butter 528
 Pumpkin Butter 529
 Apple Cumin Butter 529
 Orange Vanilla Bean Sauce 530
 Maple Sauce 530
 Classic Caramel Sauce 531
 Caramel Sauce 531
 Espresso Caramel Sauce 532
 Clear Apple Caramel Sauce 533
 Clear Orange Caramel Sauce 533
 Clear Pear Caramel Sauce 533
 Soft Caramel Filling 534
 Butterscotch Sauce 534
 Milk Chocolate Caramel Fudge Sauce 535
 Ginger Rum Sauce 536
 Honey Cardamom Sauce 537
 Honey Cognac Sauce 538
 Vanilla Sauternes Reduction 538
 Cherry Sauce 539
 Pineapple Honey Beurre Blanc 539
 Champagne Sauce 540
 White Wine Sauce 540
 Orange Hard Sauce 540
 Lemon Hard Sauce 541
 Honey Hard Sauce 541
 Anise Hard Sauce 541
 Brown Sugar Butter Rub 541
 Devil's Fudge Icing 542
 Chocolate Whipped Cream 542
 Vanilla and Date Milk Dressing 543
 Banana Passion Fruit Broth 543
 Spraying Chocolate 544
 Guava Jelly 544
 Basil Gelée 545
 Encapsulated Bergamot Orange
 Spheres 546
 Champagne Gel 547
 Red Bean Paste 547
 Red Bean Paste Décor 548
 Red Bean Jam 548
 Champagne Gastrique 548
 Rhubarb 549
 Candied Apples 549
 Apple Skin Powder 549
 Caramel Baking Liquid for Apples 550
 Fig Liquid 551
 Fig Paste 551
 Pickled Strawberries 552
 Steamed Apple Insert 553
 Butter Cake Sauce 553

14 Frozen Desserts 554

- Vanilla Ice Cream 566
 - Cinnamon Ice Cream 566
- Chocolate Ice Cream 567
 - Milk Chocolate Ice Cream 567
 - White Chocolate Ice Cream 567
- Coffee Ice Cream 568
 - Almond Ice Cream 568
 - Cardamom Ice Cream 568
 - Green Tea, Earl Grey, or Chai Ice Cream 568
 - Peanut Butter Ice Cream 568
 - Pistachio Ice Cream 568
 - Praline Ice Cream 568
 - Star Anise Ice Cream 568
 - Toasted Coconut Ice Cream 568
- Peanut Brittle Ice Cream 569
- Coffee Cardamom Ice Cream 570
- Armagnac Vanilla Ice Cream 571
- Bourbon Ice Cream 572
- Crème Fraîche Ice Cream 573
- Raspberry Ice Cream 574
 - Banana Ice Cream 574
 - Mango Ice Cream 574
 - Passion Fruit Ice Cream 574
 - Peach Ice Cream 574
- Strawberry Ice Cream 575
- Lemon Verbena Ice Cream 576
- Rum Raisin Ice Cream 577
- Chocolate Swirl Ice Cream 578
 - Caramel Swirl Ice Cream 578
 - Fruit Swirl Ice Cream 578
- Soft Caramel Filling 579
- Buttermilk Ice Cream 579
- Walnut Praline Ice Cream 580
- Graham Cracker Ice Cream 581
- Mint Ice Cream 582
- Lemon Frozen Yogurt 582
- Chocolate Frozen Yogurt 583
- Sorbet Syrup (65° Brix) 583
- Strawberry Frozen Yogurt 584
 - Raspberry Frozen Yogurt 584
- Lemon Sorbet I 584
 - Key Lime Sorbet 584
 - Lime Sorbet 584
 - Cilantro Lime Sorbet 584
- Lemon Sorbet II 586
- Orange Sorbet 586
 - Blood Orange Sorbet 586
- Grapefruit Sorbet 587
- Red Grape Sorbet 587
- Peach Sorbet 588
 - Apricot Sorbet 588
 - Guava Sorbet 588
 - Kiwi Sorbet 588
 - Mango Sorbet 588
 - Pear Sorbet 588
 - Prickly Pear Sorbet 588
 - Raspberry Sorbet 588
- Granny Smith Apple Sorbet I 588
- Granny Smith Apple Sorbet II 589
- Banana Sorbet 589
- Black Currant Sorbet 590
- Strawberry Sorbet 590
- Strawberry Basil Sorbet 591
- Blackberry Sorbet 592
- Chocolate Sorbet I 592
- Chocolate Sorbet II 593
- Coconut Sorbet 593
- Spiced Wine Sorbet 594
- Lychee Sorbet 595
- Walnut Milk Sorbet 596
- Buttermilk Sherbet 596
- Chocolate Sherbet 597
- Vanilla Bean Sherbet 597
- Vanilla Mascarpone Sherbet 598
- Mango Granita 598
- Raspberry Granita 599
- Fresh Ginger Granita 599
- Sour Cherry Granita 600
- Green Tea Granita 600
- Red Wine and Citrus Granita 601
- Lillet Granité 601
- Lemon Semifreddo with Blueberries 602
- Lemon Semifreddo 604
- White Chocolate Mint Semifreddo 605
- Frozen Chocolate Bombe 606
 - Frozen Fruit Bombe 606
 - Frozen Lemon Bombe 606
 - Frozen Maple Bombe 606
 - Frozen Orange, Hazelnut, or Almond Liqueur Bombe 606

Frozen Pistachio, Almond, or Peanut Butter
Bombe 606
Orange Liqueur Soufflé Glacée 607
Chocolate Parfait 608
Chocolate Hazelnut Parfait 609
Praline Parfait 610
Maple Parfait 610
Frozen Lemon Savarin 611
Frozen S'mores 612
Frozen Espresso and Vanilla Bombe 614

15 Pies, Tarts, and Fruit Desserts 616

Apple Pie 628
Cherry Pie 629
Blueberry Pie 630
Blueberry Pie with Fresh Berries 631
Lemon Meringue Pie 632
Pumpkin Pie 633
Vanilla Cream Pie 634
Banana Cream Pie 634
Chocolate Cream Pie 634
Coconut Cream Pie 634
Sweet Potato Pie 635
Tarte Tatin 636
Pecan Pie 638
Chocolate Pecan Pie 638
Pecan Cranberry Pie 638
Puff Pastry Apple Tart 639
Strawberry Rhubarb Tart 640
Rustic Peach Tart 641
Florida Sunshine Tart 642
Lemon Fantasy Tart 643
Raspberry Mascarpone Tart 644
Cheese Tart 646
Lemon Mousse Tart 647
Almond and Pine Nut Tart 648
Caramel Orange Tart 649
Zesty Lime Tart 650
Apple Custard Tart 651
Custard Fruit Tart 652
Apple Almond Tart 653
Warm Chocolate Tart 654
Walnut Tart 655

Chocolate Macadamia Nut Tart 656
Cranberry Pecan Tart 657
Apricot Clafoutis Tart 658
Clafoutis 659
Three-Berry Cobbler 660
Spiced Apple and Dried Fig Cobblers 662
Apple Crisp 663
Apple Strudel 664
Warm Apple Charlottes 666
Cranberry Pear Strudel 667

16 Filled and Assembled Cakes and Tortes 668

Bavarian Cream Torte 681
Charlotte Royale 682
Charlotte Russe 683
Chocolate Sabayon Torte 684
Wine Cream Torte 685
Black Forest Cake 686
Dobos Torte 687
Hazelnut Torte 688
Hazelnut Florentine 689
Chocolate-Dipped Florentines 689
Confectioners' Sugar-Dusted
Florentines 689
Mocha Torte 690
Chocolate Almond Torte 691
Havana Torte 691
Spanish Vanilla Torte 692
Opera Torte 693
Zebra Torte 694
Zuger Kirsch Torte 695
Pithivier 696
King's Cake 696
Gâteau St. Honoré 698
Almond Cake 699
Coffee Chantilly Torte 700
Chestnut Cake 701
Chocolate Marquise Torte 702
Chocolate Dacquoise Torte 703
Chocolate Mousse Torte 704
Chocolate Ruffle Cake 705
Peanut Butter Bars 706
Gâteau Praliné 708

Gâteau Charlemagne 709
Orange Mousseline Torte 710
Parisian Gâteau 711
Orange Torte 712
Passion Fruit Torte 713
Peanut Butter S'mores Cake 714
Chestnut Entremet 715
Green Tea Entremet 716
Sticky Rice Entremet 717
Caramel Macadamia Nut Torte 718
Mochaccino cake 719
Milk Chocolate Chai Latte Cake 720
Carrot Cake 721
Apple Spice Entremet 722
Harvest Apple Cheesecake 724
Fig Newton cake 725
Coconut Pineapple Passion Fruit Cake 726
Coconut Frangipane Cake 727
Frangipane Cake 728

17 Breakfast Pastries 730

Cranberry Orange Muffins 737
 Blueberry Muffins 737
 Mixed Berry Muffins 737
Lemon Poppy-Seed Muffins 738
Morning Glory Muffins 739
Bran Muffins 740
Corn Muffins 741
Crêpes Suzette 742
Pain au Chocolat 743
Croissants 744
 Almond Croissants 744
Bear Claws 746
Cheese Pockets 747
Cherry Half-pockets 748
 Apple Turnovers 748
 Chausson aux Pommes 748
 Nutella Squares 748
Cherry Cheese Baskets 749
Braided Coffee Cake 751
Schnecken 752
Twist Coffee Cake 753
Danish Twists 754
 Cashew Butter and Grape Jelly Danish 754

Plum Danish 754
Wreath Coffee Cake 755
Pain aux Raisins 756
Pumpkin Fontaines 757
Yeast Doughnuts 758
Brioche Doughnuts 759
Cake Doughnuts 760

18 Individual Pastries 762

Apple Galettes 769
Tartlet Shells 770
Fresh Fruit Tartlets 770
Bittersweet Chocolate Orange Tartlets 771
Citrus Tartlets 772
Pear Custard Tartlets 773
Lemon Curd Tartlets 773
Raspberry Curd Tartlets 774
Margarita Chiffon Tartlets 775
Pecan Cranberry Tartlets 776
Pear Frangipane Tartlets 777
Pineapple Tarte Tatin 778
Fruit Strip Tartlets 778
Pecan Passions 780
Victorias 781
Classic Napoleons 782
Mocha Mousse Slices 784
Chocolate Roulade Slices 785
Frangipane Triangle Slices 786
Mango Raspberry Slices 787
Praline Slices 788
Raspberry Marzipan Slices 789
Raspberry Wine Cream Slices 790
Chocolate Caramel Bombes 791
Chocolate Mousse Bombes 792
Chocolate Peanut Butter Bombes 793
Lemon Bombes with Macerated
 Raspberries 794
Summer Pudding 795
Phyllo Cups 796
Meringue Swans 797
Vacherins 798
Chocolate Éclairs 800
Praline Éclairs 801
Cream Puffs 802
Coffee Religieuses 803

Paris-Brest 804
Baklava 805
Pistachio and Chocolate Pyramids 806
Monte Alban 808
Chocolate Teardrops 810
Happiness 811
Coconut Frangipane 812
Russian 812
Hazelnut Dacquoise 814
Paulina 816
Chocolate Caramel Mousse Dessert 817

19 Savory Baking 818

Brie en Croûte 833
Spinach Feta Quiche 834
 Quiche Lorraine 834
 Three-Cheese Quiche 834
Spinach and Goat Cheese Quiche 836
Caramelized Onion Quiche 837
Herbed Potato Pie 838
Cheddar Cheese Wafers 840
Ham and Cheese Crescents 841
 Broccoli Cheese Crescents 841
Blue Cheese Tart 842
Creamed Wild Mushroom Tartlets 843
Petite Bouchée aux Duxelles 844
Wild Mushroom Pizza 846
Margherita Pizza 848
Gougères 849
 Herb-Tomato Gougères 849
 Miniature Gougères 849
Spanakopita 850
Savory Churros 852
Crabmeat and Avocado Profiteroles 853
Palmiers with Prosciutto 854
Mushroom Bruschetta 855
Black Bean Empanadas 856

20 Plated Desserts 858

Banana-Peanut-Chocolate Dome 864
New York Cheesecake 867
Almond Apple Financier with Date
 Dressing 869
Pain Perdu 870

Praline Parfait Dessert 873
Strawberries Three Ways 875
Tropical Savarin Madagascar 876
Pear and Thai Jewels 879
Granny Smith Apple Sorbet, Apple Cider
 Tuile, Candied Apples, and Cinnamon
 Streusel Dessert 881
Bergamot Posset Dessert 883
Strawberry Champagne 885
Peanut Butter Bar Dessert 887
Goat Cheesecake with Blueberry Bliss and
 Chantilly Cream 889
Vacherin with Blackberry Sorbet and Mint
 Ice Cream 891
Individual Tarte Tatin 893
Warm Chocolate Tart 895
Strawberry Shortcake 897
Milk Chocolate Mousse Bombe with Pecan
 Caramel and Bourbon Ice Cream and
 Pecan Crumble 899
Grilled Cheese 901

21 Chocolates and Confections 902

Caramel Ganache 927
Dark and Stormies 928
Truffle Truffles 929
Dulce de Leche Coffee Truffles 930
Rum Truffles (For Hollow Shells) 932
Earl Grey Ganache Truffle 933
Coffee Poodles 934
Almond Dragées 935
 Hazelnut Dragées 935
 Walnut Dragées 935
Rochers 936
Mendiant 936
Praline-filled Chocolate Cups 937
Candied Orange Peel 938
Soft Caramel Filling for Chocolate
 Cups 940
Soft Caramels 942
Raspberry Caramels 943
Toffee 944
Peanut Brittle 945
Pecan Butter Crunch 946
Leaf Croquant 947

Hard Candies 948
Mint Fondant 949
Fudge 950
Maple Fudge 951
Frappe Chocolate Fudge 952
Nougat Torrone 954
Nuss Bonbon 957
Gianduja 958
 Milk Chocolate Gianduja 958
 White Chocolate Gianduja 958
Milk Chocolate Peanut Butter
Gianduja 958
Triffections 959
Branchli Branches 960
Three Brothers 960
Tremors 961
PB&Js 962
Pistachio Marzipan 963
 Toasted Hazelnut Marzipan 963
Walnut Marzipan 964
Toasted Hazelnut Marzipan with
Chocolate 965
Tree Trunks 966
Fruit Jellies 967
Marshmallows 968
 Cinnamon Marshmallows 968
 Nougat Montélimar 970
Seafoam 972
Soft Chocolate Nougat 973
Molten Chocolate Truffle 975

22 Décor 976

Buttercream for Décor 1013
Chocolate Dome 1013
Chocolate Piping Gel 1013
Royal Icing 1014
Dark Modeling Chocolate 1014
White Modeling Chocolate 1015
White and Dark Chocolate Décor 1016
Green Tea White Chocolate Spirals 1016
White Chocolate Plaques 1017
White Chocolate Puffed Rice
Plaques 1017
Chocolate Nib Nougatine 1018

Chocolate Graham Décor 1019
White Chocolate Garnish 1019
Marzipan for Modeling and Cake
Covering 1020
Marzipan Leaves 1020
Marzipan Chestnuts 1021
Poured Sugar 1021
Spun Sugar 1022
 Spun Sugar Ball 1022
Rock Sugar 1024
Caramel Décor 1024
Pulled Sugar 1025
Tartaric Acid 1026
Pastillage 1026
Gum Paste 1027
Rolled Fondant 1028
Gum Glue 1028

23 Wedding and Specialty Cakes 1030

Heart-shaped Wedding Cake 1036
White Buttercream Magnolia Wedding
Cake 1039
White Cake with Black Silhouettes 1042
Hydrangea Cake 1044
Dogwood Flowers Cake 1046
Royal Icing Box Cake 1048
Overpiped Cake 1050
Yellow Cake with Daisies 1052
Tiffany Box Cake 1054
Chocolate Tiered Cake 1056
Link Twist Cake 1058
Drapes and Swags Cake 1060
Painted Rose Cake 1062

Appendix A Elemental Recipes 1064

Egg Wash 1064
Pan Grease 1064
Pesto 1064
Pineapple Chips 1065
Tomato Sauce 1065

Sachet D' Épices	1065	Lemon Chips	1074
Almond Filling	1066	Candied Lemon Slices	1074
Almond-Cassis Filling	1066	Lemon Curd Chips	1075
Cheese Danish Filling	1066	Poaching Liquid for Fruit	1075
Chocolate Filling	1067	Port Poaching Liquid	1076
Cream Cheese Filling	1067	Poached Cranberries	1076
Hazelnut Filling	1068	Poached Pears	1077
Frangipane for Filling	1068	Poached Raisins	1077
Braised Pineapple	1068	Roasted Black Mission Figs	1078
Brûlée Sugar Blend	1069	Saffron Poaching Liquid	1078
Candied Rose Petals	1069	Simple Syrup	1079
Candied Walnuts	1069	Stabilizer Solution for Whipped Cream	1079
Cinnamon Smear	1070	Streusel Topping	1079
Cinnamon Sugar	1070	Cinnamon Streusel	1080
Citrus-Flavored Syrup	1071	Vanilla Sugar	1080
Coconut Shavings	1071	Walnut Praline Paste	1080
Coffee Concentrate	1072	Bieber Spice	1081
Danish Glaze	1072	Lebkuchen Spice (Gingerbread Spice)	1081
Gelatin Solution	1073	Spice Mix for Pumpkin Crème Brûlée	1081
Japonais Meringue	1073		

PREFACE

The *Third Edition of Baking and Pastry: Mastering the Art and Craft* is an inspiration for new ideas in recipes and design that every baking student or professional of the culinary or baking and pastry arts will use to learn and develop basic and advanced baking and pastry techniques. It contains the tried and true recipes that are used in the classrooms by today's culinary students and instructors. A guide of basic techniques, the book contains written step by step methods that are reinforced with detailed photography; teaching lessons essential to anyone wanting or needing to learn and develop skills in the baking and pastry arts. New plated desserts and special occasion cakes convey the pulse of industry trends not only in presentation, but also through modern techniques and innovative flavor profiles.

ORGANIZATION

Baking and Pastry: Mastering the Art and Craft is the ideal reference for those craving to learn, those who need to learn, and those looking to reinforce existing knowledge about baking and pastry. It is intended to serve as a training tool for baking students and professionals alike. The book is the foundation for the successful understanding and execution of basic recipes and techniques utilized in almost every professional and educational setting. The basic techniques and recipes found in the book are the kernels of knowledge that can be drawn upon throughout your professional career, while the advanced techniques presented in the later chapters will serve as a source of inspiration and reference for seasoned professionals who are looking to create new, original recipes and presentations.

The chapters progress through four parts, each building on the information, techniques, and recipes of the previous.

- The first part of the book relays fundamental information about the profession, ingredients, and equipment and then moves to discuss the

principles of understanding how baking formulas work; introducing the functions of baking ingredients and basic bakeshop math.

- The second and third parts open into chapters which apply the information and knowledge from the previous introducing foundational recipes, some of which can stand alone and others which serve as a component or base for a more complex item. These include basic and advanced yeast doughs, pastry dough and batters, quick breads and cakes, cookies, custards, creams, mousses, icings, glazes, sauces, and frozen desserts. With accompanying methods and techniques, these chapters provide the rudiments of the craft for all baking and pastry students and professionals.
- Capping it all off, the final part the book uses the set foundation of the previous chapters to create assembled and finished baking and pastry goods, further developing the necessary skills for a baker or pastry chef to hone their art and craft. The recipes presented in Parts Two and Three for items such as cakes, cookies, sauces, and more are utilized in inventive plated desserts, breakfast pastries, and plated desserts. Introducing techniques for assembly and décor, the final chapters display the gamut of baked goods in style and technique. Pies, Tarts, and Fruit Desserts covers a range of recipes from comfort food favorites like lemon meringue and pumpkin pie, to refined classics like strudel and clafouti, to updated favorites like the strawberry strip tart. Both classic and contemporary styles of Filled and Assembled Cakes and Tortes are presented in Chapter 16. Recipes in the Breakfast Pastries chapter encompass traditional American and European baked goods, from simply prepared muffins to elaborately braided danish. The Individual Pastries presented in Chapter 18 combine different flavor profiles, textures, types of components, and presentation styles to create desserts that are ideal for myriad settings, from a buffet to a restaurant to a café. The professional baker or pastry chef is often called upon to create savory items for special events or items that would be well suited for a café setting; the Savory Baking chapter provides recipes that would work well in either of these venues. The Plated Desserts in Chapter 20 cover a wide range

of presentation styles from classic to contemporary and serve as inspiration for students and pastry professionals alike. The Chocolates and Confections contained in Chapter 21 are easy to approach and don't require the special equipment that is typically used in specialty chocolate shops. A basic knowledge of baking and pastry can be used to make the ganache-based, aerated, and nut-based confections found here. The Décor chapter showcases the fundamental techniques that can be used to finish desserts with an elaborate flourish, using everything from pulled sugar to royal icing floodwork to chocolate stenciled and cut décor to gum paste and pastillage. The ability of a baker or pastry chef to provide both simple and elaborate specialty cakes is integral to nearly any work environment the professional will encounter. The cakes in Chapter 23 give the reader guidance for preparing these types of cakes. From rustic to refined, every technique is fully explained. Photography shows the beauty in both simple and complex styles of presentation and illustrates the how-to in easy-to-follow steps.

WHAT'S NEW

Numerous changes have been made to *Baking and Pastry: Mastering the Art and Craft* to enhance it as a comprehensive resource:

150 new recipes were added throughout the book to reflect current industry trends.

In **CHAPTERS 1 THROUGH 4**, there is new text concerning issues of sustainability and seasonality and volume food service in the bakeshop.

CHAPTERS 7 AND 8, on beginning and advanced yeast breads and rolls, were revised with updated recipes and new photography focusing on traditional European classics such as Fougasse, Vollkornbrot, and Pain Pugliese.

CHAPTERS 9 THROUGH 14 contain foundational recipes that were added to support the creation of the finished items found in Part Four. The applications for these recipes can also be expanded upon beyond the specific uses in the book.

CHAPTER 16 includes new photography for assembling entremets and a variety of new en-

tremet recipes that span a wide array of flavors and textures.

CHAPTER 18 features an all-new section of recipes on doughnuts and updated recipes for classic and modern Danish preparations.

CHAPTER 19 was updated with recipes that reflect the practical application of savory items that would be prepared by the pastry professional and includes a new section on vol-au-vents.

CHAPTER 20 contains 60 percent new recipes, with cutting-edge flavor combinations, and new photography that incorporates current plating techniques.

CHAPTER 21 has been revamped and streamlined to include chocolates and confections recipes that are approachable and customizable for a variety of professional settings. There is a new section on hollow-shell chocolates, and the recipes are now focused on ganache-based, nut-based, crystalline and non-crystalline, and aerated confections.

CHAPTER 23 features new recipes for specialty cakes that can be executed in a variety of settings with ingredients and equipment that are commonly found in most bakeshops.

There are 295 new photos in this edition of the book, including striking galleries throughout the book, new produce and equipment identification pictures, new illustrations for knot rolls, new bread-shaping photos (Chapters 7 and 8), new pastry dough and batter photos (Chapter 9), new creaming and pound cake photos (Chapter 10), cookie-shaping photos (Chapter 11), mousses and soufflés (Chapter 12), frozen desserts and finished frozen desserts (Chapter 14), pie assembly (Chapter 15), entremet assembly (Chapter 16), plated desserts (Chapter 20), chocolate shaping (Chapter 21), extensive new décor photography including pulled-sugar work and gum paste flowers (Chapter 22), and new specialty cakes (Chapter 23).

RESOURCES

For those using this book in a classroom setting, the *Third Edition of Baking and Pastry: Mastering the Art and Craft* is accompanied by ancillary materials to aid students in their studies and instructors in their classroom preparation.

The cohesive Resources package works to further educate and challenge the reader through the seamlessly integrated *Instructor's Manual*, *Student Study Guide*, and PowerPoint Slides. The *Study Guide* (978-1-118-71282-5) includes key terms, study questions, short answers, crossword puzzles, and interactive activities. Answers to the questions are included in the *Instructor's Manual*.

An all-new online *Instructor's Manual* includes teaching suggestions that highlight key points from the text in lecture outlines and key terms as well as a Test Bank that includes true/false, multiple choice, fill-in-the-blank, and short answer essay questions. PowerPoint presentations for each chapter are also available; these are easily customizable to suit a variety of classroom settings and also reinforce the techniques and text throughout the book. These Instructor Resources can be found on the book's website at www.wiley.com/college/cia. Additionally, the Test Bank has been specifically formatted for *Respondus*, an easy-to-use software program for creating and managing exams, which can be printed to paper or published directly to Blackboard, WebCT, Desire2Learn, eCollege, ANGEL, and other eLearning systems. Instructors who adopt *Baking & Pastry* can download the Test Bank for free.

An Image Gallery of photos and illustrations from *Baking & Pastry* can be found on the book's

website at www.wiley.com/college/cia. The gallery is a great resource to enhance course preparation and illustrate techniques and finished dishes in the classroom.

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PART ONE

THE
PROFESSIONAL
BAKER AND
PASTRY CHEF

I

CAREER OPPORTUNITIES FOR BAKING AND PASTRY PROFESSIONALS

Baking originated thousands of years ago and it is integral to human history and still is the source of the most basic foodstuffs. Bread's importance can be seen in the way governments regulated its production, quality, weight, and price. Bakers established the first trade guilds in Rome in 150 B.C.E.

The pastry chef, as the position exists today, evolved through the brigade system. Instituted by Escoffier, it served to streamline work with workstation and specific responsibilities. Pastries were made by the pâtissier (pastry chef). Later, this position separated from the brigade and developed its own organization largely attributed to Marie-Antoine Carême (1784–1833), a Parisian chef and pastry chef whose books on the pastry arts are influential to this day.



CAREER OPPORTUNITIES FOR BAKING AND PASTRY PROFESSIONALS

RICHARD COPPEDGE, CMB



What was your first job in a kitchen (bakeshop)?

I was a hospital kitchen employee. I took food carts up to patient areas. This led to a part-time employee meal cook position.

What advice would you give to someone just starting their career in the food industry?

It is important to learn all there is to know about the ingredients and foods you use. Understand what it takes, and how the items are grown, made, and used.

How would you describe your style?

My style is firm, stern, respectful, and formal. When I perceive that a person carries respect for food and also respect for themselves and others, they are easy to talk to on a professional level.

Why is a formal education in baking and pastry important in today's world?

Education is a great launching point, especially when a person is starting out later in his worklife. Regardless, it is beneficial for the beginner to learn correct technique.

Who was the biggest influence in your professional life?

My students, who are the reason for my career, and my development of a style that is unique. Each day, I make it my goal to help groom as many individuals as are in my class that day. And for myself, to be able to learn from my students. It may not always be bakeshop related, but it might be something that helps me to understand their way of thinking.

The most underrated ingredient is . . . water.

BAKERS AND PASTRY CHEFS can pursue many options. You might own your own company, or work for someone else. It can be a commissary setting, restaurant, or shop specializing in wedding cakes or handcrafted breads. To get a foundation you may work in a cross section of bakeries and kitchens, then specialize in a discipline.

Bakers often follow one of two paths: working in large commercial bakeries that do volume production, or in smaller shops that produce lower volume but higher-quality goods.

Wholesale bakeshops focus on large-scale production, selling finished or unbaked items and batters to supermarkets, cafés, gourmet shops, restaurants, caterers, cafeterias, and the like. Individually owned shops provide a range of services, from a full-service bakeshop to one that specializes in chocolates and confections or wedding cakes. Large hotels rely upon the skills of the pastry chef and baker, who are often responsible for breakfast pastries, elaborate pastry displays, wedding cakes, and the like, including supplying the many food outlets and banquet rooms.

The restaurant pastry chef needs a range of baking and pastry skills to create a variety of items—ice cream and cakes, chocolates to serve as mignardises and petits fours, even pizza dough. Private clubs and executive dining rooms, as well as schools, hospitals, and colleges, rely upon executive pastry chefs and master bakers to handle high-volume, high-quality fare.

Food producers operate research and development kitchens to test products and formulas and fine-tune them. These large businesses also offer benefits and career advancement within the corporation.

Caterers often hire pastry chefs and bakers to meet the desires of a special client for a particular event, whether a trade convention, wedding, birthday party, cocktail reception, or gallery opening. Grocery stores hire baking and pastry professionals to develop carryout desserts and signature breads, as well as to assist with research, focus groups, packaging, pricing, and marketing strategies. Consultants in the baking and pastry arts work with clients to develop menus, staffing strategies, marketing plans, packaging, and the like.

CHEF PETER GREWELING, CMB



What was your first job in a kitchen (bakeshop)?

My first baking job was in the basement of the student union at Cornell University. There was one full-time baker—George—and me, and numerous part-time student workers. With just this crew, we produced the majority of the baked goods for the university dining with an enrollment of 16,000 students. It was hard work, and a lot of production, but it was one of the best times in my life.

George was a true free spirit. We did copious production, all from scratch, and the quality was quite good for university dining. There was always Frank Zappa or The Grateful Dead playing as we worked, so the environment was fun and creative; it was a great balance. For me, it was an ideal introduction to professional production baking.

How would you describe your style?

Irascible, acerbic, and cantankerous, with an emphasis on the technical side of confectionery. I want my students to un-

derstand how the materials work so that they can apply that knowledge and succeed wherever they go. I require my students to actively participate in class, and in their education. When students are putting in the effort that they should, learning the things that they will need, and producing excellent products, there is plenty of opportunity for humor and fun.

Craftsman, leader, manager, artisan, engineer, architect: Which one are you?

I am an educator, technician, and artisan, in that order. I came here as a pastry chef and learned to be a teacher. Over the years I have become passionate about education. The most important products that leave my class are not the chocolates, but rather the students. I want my students to leave my class having learned as much as they possibly can about the technology of chocolate and confections, as well as proper techniques and good working habits. The technician in me, who seeks to understand how things work, is what allows the artisan in me to be creative, and to bring ideas to fruition. Without that understanding of what I consider to be fundamentals, creative ideas are little more than desires or wishes.

What advice would you give to someone just starting their career in the food industry?

Relentlessly educate yourself in every aspect of the food business you can, whether it is closely related to what you do or not. Do not pigeonhole yourself into one small area; learn as much as you can from everyone you can, always. The more you know, understand, and can do, the more valuable you are in business, and the more interesting your life and career will be.

Working as a salesperson is also an important function. Such professionals understand the needs of today's bakeries and pastry shops, and can promote new ways to use familiar products and equipment. Teachers in the baking and pastry arts are vital to degree- and certificate-granting programs. Baking and

pastry professionals who teach bring a special awareness of how things work in the real world. Food writers and critics have come with education and experience in the baking and pastry arts. This allows them to write truly informed reviews, articles, columns, books, and content for multimedia and online presentations.

FORMAL EDUCATION

ALL EMPLOYERS LOOK FOR EXPERIENCE AND EDUCATION—even entry-level positions can require a degree. The increasing emphasis on formal education has brought about more programs dedicated exclusively to baking and pastry. Employers rely on the craft taught by these schools to establish a common ground of ability.

Both employers and schools recognize that formal education on its own is not enough to ensure excellence. Baking and pastry are practical arts. To master them, you need to work and make job choices that invest in your future.

CONTINUING EDUCATION

JUST AS FORMAL EDUCATION has become important in launching a career, certification and continuing education keep advancing you as a baking arts professional. Because the industry is constantly evolving, continuing your education and attending workshops, seminars, and trade shows hone skills while keeping you up on new methods, ingredients, techniques, products, and business skills.

Throughout your career, you should evaluate your achievements and goals, and take the appropriate steps to keep on top of the latest information geared to both culinary professionals and the world at large. Enter contests and competitions. Educate yourself, and learn to use the important tools of your business from budgets to inventory control systems.

CERTIFICATION

THE RETAIL BAKERS OF AMERICA (RBA) and the American Culinary Federation (ACF) have established standards for certifying bakers and pastry chefs. The RBA's certification levels begin with Certified Journey Baker (CJB). The RBA's next level includes three designations: Certified Baker (CB), Certified Decorator (CD), and Certified Bread Baker (CBB). Each level requires that your work history meet certain criteria for you to be eligible to take the exams, which have a written and practical component. Certified Master Baker (CMB) is the highest certification given by the RBA.

The ACF certifies pastry culinarians, giving Certified Pastry Culinarian (CPC) entry-level

certification based on work experience as well as written and practical tests. Next is Certified Working Pastry Chef (CWPC); individuals working at this level are typically responsible for a shift or a section within a food-service operation. The next level is Executive Pastry Chef (CEPC), which is for department heads who report to a corporate executive or management team. Researchers and others in specialized areas also take the CEPC test. The ACF grants the Certified Master Pastry Chef (CMPC) certification, an eight-day exam that combines a written and practical test of classical and contemporary applications. Finally, the RBA and the ACF have specific minimum criteria that must be met before you can apply for certification.

NETWORKING

DEVELOPING A PROFESSIONAL NETWORK can be formal or informal. You begin simply by introducing yourself to others in your field. Then it's having business cards at trade shows and other professional encounters. Join culinary arts organizations. Many maintain web sites—and many culinary artists maintain blogs—that enable them to communicate with other professionals, get ideas, express ideas, and make new contacts. When you first make a good

contact, follow up with an e-mail, phone call, or a note. Social media presents a unique opportunity to expand your network through a variety of avenues that are visited by both professionals and nonprofessionals. The communication that you develop with your peers will keep your own work fresh and contemporary, and an established network will also make it much easier for you to find your next job—or your next employee.

CHEF GEORGE HIGGINS, CMB



What was your first job in a kitchen (bakeshop)?

I had never baked anything, except for sourdough bread. I met a baker in Los Angeles who had started one of the original organic natural foods bakeries. I asked him if he could teach me to bake. He told me if I met him at midnight at the bakery, I could help him and he would teach me. He could not afford to pay me, but I worked the midnight shift with him for a year, and what he taught me was priceless and has served me well to this day.

What advice would you give to someone just starting their career in the food industry?

Keep an open heart and open mind. Be prepared to work unusually demanding schedules. Find situations where you can both practice and perfect your craft, but also keep learning and growing. Don't be afraid to volunteer your time and energy, be humble and helpful; you may find that accomplished professionals will recognize your value and they will be

more willing to share their hard-earned trade secrets with you.

How has your style evolved over the course of your career? How have your experiences contributed to this evolution?

I adhere to mastering the basics, whether it be formulas or techniques. Early on I was more the free spirit, inspired by some of the original California hippie natural food bakers. Later I realized that discipline and mastery were the keys to achieving the level of excellence I desired. Mastering the basics set me free.

Why is a formal education in baking and pastry important in today's world?

It is critical if you hope to have a lifetime of success. A good education will prepare you for any eventuality; it will set the standard required to excel in your craft, and the breadth of awareness to aspire to any position that may present itself on your career path.

The most underrated ingredient is . . . devotion to excellence in every aspect of your chosen craft.

The biggest misconception of our industry is . . . that baking and pastry are not hard work.

My secret for success is . . . determination.

My favorite dessert is . . . blueberry pie.

If I weren't a pastry chef, I would be . . . a rock and roll drummer.

I could eat . . . sandwiches on good bread . . . every day.

THE BUSINESS OF BAKING AND PASTRY

AS YOUR CAREER EVOLVES, you will move into those positions where your skills as an executive, administrator, and manager are in demand. This does not mean that your ability to make breads and pastries is less important. Plating, presentation, and pricing are daily concerns for any executive pastry chef or baker—and you may still be creating new menu items and products while keeping costs under control and improving profits. Managing a

bakery or pastry shop requires the ability to handle four areas effectively: physical assets, information, people (human resources), and time. The greater your management skills in these areas, the greater your potential for success. Many management systems today emphasize the use of “excellence” as a yardstick. Every area of your operation can be used to improve the quality of service you provide to your customers.

CHEF NOBLE MASI, CMB, CEPC, AAC, HOF



What was your first job in a kitchen (bakeshop)?

My first job was at Buzzeo's Bake Shop located in New York City. It was opened in 1947 by my brother, Tony, and his wife, Marie. I was nine years old and started by making deliveries after school, cleaning sheet pans, and sweeping floors. My responsibilities grew when I attended Food Trades High School; I then prepared fruit fillings, cooked custards and creams, scaled formulas for the bakers, and decorated cakes for family and friends.

How would you describe your style?

My style is more scientific/craftsman. I enjoy the study of baking principles, ingredient technology, and formula development. I also have an interest in the history of baking and the evolution of equipment and ingredients.

Craftsman, leader, manager, artisan, engineer, architect: Which one are you?

Leader. To be a leader today you need a formal education, successful industry work experience, the ability to inspire confidence in your employees, and a vision and plan to achieve success by listening and

building a team. Build a network of professionals in the industry and stay abreast of the latest innovations and technologies.

What advice would you give to someone just starting their career in the food industry?

Cook and bake for family and friends at every opportunity—holidays, birthdays, special occasions. Clean your equipment, pots, and pans. Visit bakeries, restaurants, and supermarkets. Expand your knowledge of the ingredients, pastries, breads, and cakes and continue these explorations when the opportunity for travel comes your way. Seek employment in food service as early as possible to build the passion and love needed to succeed in this industry and join trade organizations to build, enhance, and pass on the knowledge.

The most underrated ingredients are . . . orange blossom water, cinnamon oil, cardamom, and rose water.

The biggest misconception of our industry is . . . buttercream made without butter. Many customers believe that buttercream is made with butter; however, American buttercream is made with 90% shortening. Many food markets use a product called BUTTRCREAM, spelled without the E in butter, but pronounced "buttercream," or spell it BUTTER KREME. These products contain no butter.

My secret for success is . . . positive attitude, knowledge, passion and education.

My favorite dessert is . . . traditional holiday baked goods that are made only on the holidays.

I could eat . . . bread, cheese, and Italian cured meats, and drink wine . . . **every day.**

MANAGING PHYSICAL ASSETS

Physical assets are the equipment and supplies needed to do business: everything from industrial-size mixers to flour to cash registers—in short, anything that affects your ability to do business well. These require control systems that will keep your organization operating at maximum efficiency.

For any baking and pastry operation, the material costs—whatever you use to create, present, sell, and serve your goods—is the biggest expense. For

this reason, being a baking and pastry professional entails being your own purchasing agent—or knowing how to work with one—to maintain inventories to produce and market your products and services.

MANAGING INFORMATION

Given the sheer volume of information generated each day, the ability to tap into the information resources you need has never been more important. You must not only keep yourself informed

CHEF FRANCISCO MIGOYA, CMB, CHE



How would you describe your style?

Minimalist, precise, technique focused, executed in a consistent fashion.

Craftsman, leader, manager, artisan, engineer, architect: Which one are you? What are the attributes needed to be this?

I think pastry chefs are a little bit of each of these trades. But if I had to pick one, I would say artisan. Pastry has many precision-focused attributes, but it has to be counterbalanced by a visual and spiritual sensibility associated with artisanship, which is part of what makes us human. If what we do is detached from our humanity, there is a coldness to the food we serve.

What advice would you give to someone just starting their career in the food industry?

The short answer is that there are no shortcuts or formulas to become successful, whatever your definition of successful is. The cliché answer is hard work, but hard work in and of itself is nothing if you are not paying attention and having a deep desire to be better every day. The sooner you embrace repetition and get used to it and effectively

learn to love doing the same thing day in and day out, with a daily focus on getting better, faster, and more productive each day, the better off you will be. This is the only way to get very good at anything.

How has your style evolved over the course of your career?

I believe that I have embraced simplicity now more than ever. Less clutter and bells and whistles. I found that it was a burden to have to constantly add components to desserts for the sake of color or visual balance. It is truly complicated to strip things down to their bare essentials and maintain balance among flavor, texture, and aesthetic.

Why is a formal education in baking and pastry important in today's world?

I believe it is important to learn a solid foundation. This will allow you to understand what you do better. It will teach you how to do things the right way instead of through trial and error. I went to culinary school to become a savory chef. In my initial years in pastry, working through the ranks, I often wished I had had the knowledge that a pastry education would have provided. It would have made my life a lot easier.

The most underrated ingredient is . . . salt.

My secret for success is . . . very simple: work hard, work smart, be curious, and, above all, be humble and loyal.

My favorite dessert is . . . a coffee éclair.

If I weren't a pastry chef, I would be . . . a graphic designer or an architect.

I could eat . . . pain au chocolat . . . every day.

of the latest trends, but also develop the ability to look beyond what is current to predict future trends. This will help to keep your business thriving. Restaurants, menus, dining room design, and more change dramatically with societal trends, on-the-go lifestyles, and the interest in world cuisines. Current tastes affect what people eat and where and how they want to eat it. The Internet is a powerful influence as well by allowing your customers to interact with you in a variety of ways, from making reservations to posting comments on social networking sites.

MANAGING HUMAN RESOURCES

Every shop relies on the work and dedication of people, whether they are the executive pastry chef, bakers, or wait staff, to name a few. No matter how large or small your staff may be, a team effort is one of the major factors in determining whether you succeed. One of the hallmarks of the true professional is being a team member—and this team can simply be you, your clients, and suppliers. Being part of a team