Fall 1977

Development of an Introductory Food Manual

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Frances
1977
DEVELOPMENT OF AN INTRODUCTORY FOOD MANUAL

A Specialist Project
Presented to
the Faculty of the Department of Secondary Education
Western Kentucky University
Bowling Green, Kentucky

In Partial Fulfillment
of the Requirements for the Degree
Education Specialist

by
Frances Haydon

Fall, 1977
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DEVELOPMENT OF AN INTRODUCTORY FOOD MANUAL

Recommended 11-15-77
(Date)
Grace Calloway
Director of Thesis

Approved 2-10-78
(Date)

Dean of the Graduate College
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Based on the need for a food manual for the introductory food course at Western Kentucky University, several manuals from other sources were reviewed. None was found which met the needs of the Food Science course, so it was decided that a manual would be developed at Western.

The purpose of the manual was to incorporate experiences which could meet the needs of any student taking the course either as an elective or as a program requirement. Since there is only one introductory course to serve all students who are interested in learning basic food preparation skills, such a manual was deemed a necessity by the faculty in the food area.

The development of the manual became a Specialist Degree project for the author, who had been assigned the responsibility of teaching the introductory food course. This project report explains fully the procedures followed in developing the manual according to the unique conditions which prevail when one course must serve a body of students with widely diverse needs.

Although the project was limited in scope to the development of the manual, it was recognized that such a
teaching resource does not and should not remain static. In light of this a suggested procedure for continuous evaluation and revision was included, along with a tentative time table for the first evaluation cycle.
I. INTRODUCTION

Background Information

The department of Home Economics and Family Living at Western Kentucky University offers a course entitled Food Science. This is a freshman course or the introductory foods course at the college level. In the University catalog the course description states:

HEFL 160. Food Science. 3 hrs. Includes fundamental principles of food preparation. Laboratory practice stresses efficient methods of preparation.¹

The course description as found in the catalog is vague as to what is involved in this course. The course is taught as a basic information course for all food preparation with the exception of meats. In the original planning of the course the faculty members agreed that meat should be included in another course. Meat, or the protein food, is the item around which meals are planned. It requires more time and attention; therefore, it is included in a separate food course, Food Management.

¹Western Kentucky University Bulletin. (Bowling Green, Kentucky: Western Kentucky University, fall, 1976), p. 120.
Food Science is the background course for several other food courses taken by students within the department. The number of such courses taken by a student varies according to his/her major. Students majoring in Home Economics Education, Dietetics, Institution Administration; Hotel-Motel Management and Institution Administration; Restaurant Management take the course entitled Food Management. This course uses all the information from the first course, Food Science, and places it in meal patterns emphasizing quality products and good management in meal preparation.

Dietetic, Institution Administration; Hotel-Motel Management, and Institution Administration; Restaurant Management students take a third food course, Quantity Food Preparation. In this course the students are taught how to apply the basic information and management techniques covered in Food Science to quantity cooking and service.

The science of food is one basic aspect of the dietetic field. What happens when ingredients are omitted for special diets and how such omissions affect the final product or the acceptability by the patient are of prime importance. Students in Dietetics are required to take an additional food course that covers this aspect of their training. Without the basic facts from the introductory food course, the students would be unable to understand the material in subsequent courses.
Justification of the Project

The two hours of Food Science lecture each week are used for teaching the basic facts of each food product. Each food division, such as eggs and breads, is studied separately as to: (1) the effect of applying heat, (2) the use and effect of acids and alkalines on products, (3) the purpose of the various ingredients, (4) the effect of handling techniques in combining ingredients, and (5) the effect of exposure time to high temperatures, low temperatures, and air on a product.

The students prepare food during the laboratory period using guidelines stated and discussed in class lectures. The product then is judged by the student, who applies the knowledge gained from lecture and collective techniques learned during the laboratory experience relative to identifying quality products and various causes for inferior products.

The students enrolling in the Food Science course come with varying goals in mind. It is, as stated earlier, a required course for those entering the programs of study in Dietetics, Home Economics Education, Institution Administration: Hotel-Motel Management, and Institution Administration: Restaurant Management. Other students in the class are those minoring in General Home Economics, the male students who desire basic food knowledge to prepare bachelor meals, and the females contemplating marriage and the responsibility of meal preparation for a family.
In addition to the variation in the personal goals, there is a variation in the backgrounds of the students. Generally the students entering the fields of Home Economics Education and Dietetics have completed from two to four years of high school home economics. The students in the Institution Administration Programs of Study will have had experience in the hospitality business and will have had varying amounts of home economics education received in high school. The majority of these will have had no food courses in high school. The students minoring in General Home Economics usually have had two to four years of high school home economics, while those choosing the course as an elective may have had no background in the food area.

The ideal situation would be to offer four basic food courses. A course should be offered for each of the following: (1) students using the course as an elective, (2) the Dietetic students, (3) the students majoring in either of the two branches of Institution Administration, and (4) the students majoring in Home Economics Education or minoring in General Home Economics. This division of courses would eliminate the problem of having a class composed of students with such a diversity in their needs and preparations for the course. Such a solution is unrealistic in view of existing financial considerations and available personnel and facilities.
A partial solution to the problem has been found. Advisors attempt to schedule students majoring in Home Economics Education or minoring in General Home Economics to take the Food Science course during the same semester. The students majoring in the Institution Administration areas or Dietetics are scheduled to take the Food Science course together during the alternate semester. This procedure has helped to some degree. Complications still are encountered making it impossible for some students to take the Food Science course during the desired semester. The problem still exists that the Food Science class is composed of students with different majors, different backgrounds and different needs.

As of the fall semester in 1974, the Food, Nutrition and Institution Administration Area of the Department of Home Economics and Family Living was in a transitional period. Two new programs, Institution Administration: Hotel-Motel and Institution Administration: Restaurant, recently had been granted final approval and were being incorporated into the curriculum. The American Dietetics Association, an accrediting association for the field of Dietetics, had changed the qualifications needed by a student in Dietetics preparing for an internship, a traineeship or graduate degree plus work experience. At the same time the department was making an application for accreditation of a Coordinated Undergraduate Program in Dietetics.
The Coordinated Undergraduate Program is a planned curriculum which incorporates a fifth year of clinical experiences into a four year time period. Because the fifth year experiences can not be begun until the Bachelors Degree is completed, the new program provides for a more efficient use of student time.

The stated guidelines concerning the Food Science course for Home Economics Education and both branches of the Institution Administration were vague. The Coordinated Undergraduate Program guidelines were the most definite in experiences needed in the basic food areas. The guidelines relevant for an introductory food course were as follows:

(1) analyze physical and chemical changes occurring in food during storage, preservation in terms of food composition and quality.

(2) include food standards and factors affecting food quality and apply this knowledge to quality control.

(3) utilize basic knowledge of microorganisms in the storage, preparation, preservation, processing and serving of food.

(4) plan nutritious attractive food combinations, including flavors, colors, texture, temperature, shape and consistency, that are acceptable to various socio-economic groups.²

It was the consensus of the area coordinators that if the Food Science course was in accord with the Coordinated

²"Coordinated Undergraduate Program in General Dietetics," Department of Home Economics and Family Living (Western Kentucky University, 1976), p. 53.
Undergraduate Program guidelines with an emphasis on how they related to each area that all students would be receiving the information needed by them in pursuance of their various objectives.

**Purpose of the Project**

During the 1973-74 school year the writer was a graduate assistant working toward becoming a registered dietitian. As part of the duties of the assistantship, the writer worked with the students in the quantity food laboratory and assisted the coordinator of the Food, Nutrition and Institution Administration Area in setting up part of the curriculum for the new programs. The writer received an appointment as full time faculty member of the Food, Nutrition and Institution Administration Area of the Department of Home Economics and Family Living beginning in the fall of 1974. The writer is a recipient of the Bachelor of Science degree in Vocational Home Economics Education, Masters Degree in Education, a former high school home economics teacher and eligible for the national examination for registration of dietitians. Therefore, the area coordinators of Home Economics Education and Food, Nutrition and Institution Administration felt the writer qualified to meet the needs of all students participating in the Food Science class.

Prior to the start of the 1974-75 school year, the author reviewed textbooks for the Food Science course. Several
were found to have the material appropriate for the course. With the aid of the area coordinators, one finally was chosen: *Foundations of Food Preparation* by Gladys Peckham.

Few laboratory manuals were in existence at that time. Those that were available seemed to be geared to one area, so it was suggested by one of the coordinators that the writer establish her own procedures and create the necessary materials for the laboratory classes.

During the writer's first year of teaching the Food Science class, laboratory sheets for each week's laboratory period were created by combining the writer's ideas with materials found in existing laboratory manuals. Score cards and rating scales for each laboratory period were developed to evaluate products.

Before starting the 1975-76 school year, the decision was made by the area coordinators and the writer to resume the search for a laboratory manual to meet the needs of the department. It was the belief of all that a manual would be more beneficial than weekly sheets and score cards prepared by the teacher.

The writer met with Grace Callaway, Coordinator of Home Economics Education, and Shirley Gibbs, Coordinator of Foods, Nutrition and Institution Administration, to discuss the various majors and areas of concentration in relation to Food Science. Several meetings were held to
determine how the areas of study inter-related, what to look for as various manuals were reviewed, and what was to be included in the manual to be developed.

Based on these meetings, it was determined that the manual should include a minimum of laboratory sessions for fruits, vegetables, quick breads, yeast breads, cakes, egg cookery, pastry, beverages, and starch cookery, with the possible addition of gelatins and sugar cookery. Other features to look for were as follows: (1) forms for food products as well as student performance, (2) clearly stated objectives to enable students to identify the goals for the day, and (3) a vocabulary list and study questions to aid students in reviewing the subject matter.

With the help of Gibbs and Callaway, the writer managed to collect nine laboratory manuals. After the group reviewed these manuals, the consensus of the group was that none of the manuals sufficiently met the needs of the course to warrant adoption. The obvious conclusion was: Western needs a manual written specifically for the students who enroll in Food Science as partial fulfillment for the requirements in their major fields or areas of concentration.
II. REVIEW OF LITERATURE

Introduction

Eleven manuals were obtained for review. Nine of these were reviewed and discussed in earlier meetings with the area coordinators, and the other two manuals were received and reviewed later. Some manuals were found to deal with the chemical reactions and experiments with food, some with preparation and special occasions and others with experimentation and food preparation. In the review of the strengths and weaknesses of the various manuals, it is noted that no manual entirely met the needs of Western Kentucky University. All reviewed had good points and some provided general ideas that aided in devising a manual for Western's use.

Manuals Reviewed

Mary Ann Duffie's manual, So- You Are Ready To Cook combines food preparation, meal planning and serving. All basic concepts are not included in the units; the emphasis is on the serving of a meal. If only one course were taught and tried to skim the surface of food and meal planning, this manual could possibly serve the purpose. There are no evaluation methods, stated objectives, vocabulary or study
questions.

Foods Laboratory Manual by Jean A. Phillips and Gladys E. Vail is a manual that uses more experiments than actual preparation, although some preparation is included. It is planned for more lengthy laboratory sessions than Western is able to schedule. There are no evaluation methods, vocabulary, or study questions included in the manual. This one does have objectives stated for the purpose of helping the student understand the purpose of the laboratory class.  

Written in a similar format to Phillips and Vail's manual is Helen Charley's Food Study Manual. Charley does not include objectives but has a vocabulary list and study questions. It also is planned for more time than is allowed in the course at Western and is lacking in areas desired for Western's purpose. This manual possibly could be used if two lab sessions were taught, one for dietetic majors who need more science related factors and the second for students needing less technical information.

Dimensions of Food by Devine and Pimentel is an excellent manual for dietetic majors but not for the students in other areas. The format includes objectives for students, vocabulary, recipes and procedures for the subject matter.

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study questions, charts for recording observations for various procedures of food science and some very good illustrations.\(^5\) It has no evaluation forms for student or product evaluation.

Another manual reviewed was *Food Preparation Principles and Procedures* by Sutherland, Nelson, Newark and Fitch. Its format includes the vocabulary listing, problems and problem comment sheets, and some recipes. The comment sheet has suggested words that could be used in describing the characteristics of the products prepared.\(^6\) There were no other features appropriate for Western's needs. This manual has some charts on eggs\(^7\) that could be very helpful to students, and also a good section pertaining to meats. Since the study of meats is not included in Food Science, this section is of no value for this course.

One manual reviewed was *Basic Foods* from the New Mexico State Department of Education. This is designed for vocational schools and thus is not appropriate for a college level course.


\(^7\)Ibid., p. 105.
The Food Preparation Manual prepared by the Food, Nutrition and Institution Administration Faculty of Oklahoma State University includes excellent laboratory experiences. No objectives, vocabulary, or study questions are included, however. In most cases, standard characteristics of quality products are stated, but there are no evaluation methods for products or for student performance.

Introductory Foods by Morr and Irmiter came close to Western's set requirements, although more subject matter is included than is covered in Western's Food Science course. Therefore, more class time would be needed to teach the information. The product evaluations are score cards with blocks for comments. Words or terms to be used in the comment area are stated on one page at the beginning of the book. These terms are usable in evaluating baked products but not for the many other products. As with other manuals there is no evaluation device for performance of

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9 Oklahoma State University Food, Nutrition and Institution Administration, Food Preparation Manual (Oklahoma State University, 1969), p. 56.

the student. A set of review or study questions is included but no vocabulary listing.

The second edition of Margaret McWilliams' Illustrated Guide to Food Preparation has excellent photographs of products in various stages of preparation and various standards of quality for the students to compare with their procedures and products.\textsuperscript{11} It also contains the vocabulary listing and evaluation comment cards for some products. The evaluation comment cards do not describe the superior product qualities or suggest terminology to use in commenting on the products. There are no objectives stated for any chapter and no study questions to aid the student in reviewing the subject matter.

When the third edition of McWilliams' manual was received and reviewed, it was found to be more in keeping with Western's needs than the former edition. It includes more evaluation forms but no terms suggested for the student's use in describing the products. Objectives are stated at the beginning of each chapter and, in the back of the book in finer print,\textsuperscript{12} are study questions for each chapter. In the author's experience, the average student will not look at questions, especially in finer print


in the back, as often as they will when the questions are with the subject matter under study at that time. Neither edition includes a method of student performance evaluation.

Another recently published manual was *Basic Foods* by June C. Gates. The manual is printed and sold as a packet to be put in a notebook. This method of packaging seems to have many advantages for the student. With the exception of this one and the New Mexico manual, all other manuals are of regular binding or spiral-bound.

The basic format of Gates' manual is similar to most of the others. It contains broad objectives, the laboratory procedures, and a form of a score card with listings of the characteristics the products should have, thus enabling the student to evaluate the products. It also has good illustrations, but it is devoid of study questions and student performance evaluations.

**Summary**

The foregoing review of existing manuals and the comments are not intended to criticize, nor is there any intention to suggest that they are not worthwhile publications. The remarks serve to show that for the purposes of instruction at Western Kentucky University no single manual

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now in publication meets the previously stated requirements set forth by the area coordinators and the writer.
III. PROCEDURES

Identifying Students' Needs

It is the writer's opinion that the teacher should identify the personal goals of the student and the level of the student's knowledge. The teaching strategies are therefore selected in an attempt to teach from that level to assist the student in attaining his/her goal. This project was undertaken to prepare a laboratory manual to serve as a teaching aid which would provide learning experiences needed by all students in the Food Science class. By supplying information to the students with lower levels of knowledge, the manual could enable them to participate actively with the students having average to upper levels of knowledge in the food area.

With students coming from various backgrounds of experience in the food area and having widely diverse goals, the manuals reviewed were found to be inappropriate for Western's needs by the faculty in the Home Economics Education and Food, Nutrition and Institution Administration Areas. The manuals lacked experiences deemed necessary for the areas of study and instructional needs of the students.
Approval of Format

At the meeting of the research advisory committee, the format for the manual was reviewed and approved. The approved format is an introductory section and the twelve chapters as follows: (1) beverages, (2) vegetables, (3) fruits, (4) salads, (5) eggs, (6) starches and thickeners, (7) pastry and pies, (8) quick breads, (9) yeast breads, (10) cakes and frostings, (11) sugar cookery, and (12) gelatins.

Each chapter has the same organizational pattern:
1. The behavioral objectives and performance outcomes for the laboratory session.
2. Vocabulary list.
3. Recipes.
4. Study questions.
5. Product rating scales.
6. Student performance rating scale.

Development of Format

The behavioral objectives and performance outcomes were written for each of the twelve units consistent with Bloom's taxonomy14 and as outlined in Chamberlain's and Kelly's Creative Home Economics Instruction.15 These

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were approved by the major advisor.\textsuperscript{16}

The need to have recipes supplied in the first course is the generally accepted practice. With that in mind the first step in preparing the manual was to contact the publishers of the Betty Crocker Cookbooks and Better Homes and Gardens Cookbooks as well as the Food, Nutrition and Institution Administration faculty of Oklahoma State University requesting permission to include recipes from their publications in the manual. Permission was granted by the Betty Crocker Cookbook publishers and the faculty of Oklahoma State University. The publishers of the Better Homes and Gardens denied permission to use material from their books.\textsuperscript{17}

Recipes for each chapter were selected and checked to be sure the procedures in the recipes met the objectives for each chapter. Some of the recipes selected had been used previously in laboratory sessions and had been judged as appropriate for that session. Others were selected from publications (publishers' permission secured), non-copyrighted materials or developed by the writer. Before these recipes were included, they were tested by the writer to determine the degree of difficulty, the time element

\textsuperscript{16}Behavioral objectives and performance outcomes for each chapter in Appendix B.

\textsuperscript{17}See letters in Appendix D.
involved, and the quality of the final product. More recipes were included in most chapters than could be used for one class period. This was done to give variety to the classes as well as to take advantage of the availability of some products.

After the recipes for each chapter were accumulated, rating scales were developed for use with each product the student would prepare during the laboratory period. The rating scale was designed to allow both the teacher and the student to rate the product. The student's performance rating scale also was designed for joint evaluation by the teacher and the student.\(^{18}\)

The next step was to prepare a vocabulary list. In establishing a vocabulary for each chapter, the writer includes the words or terms that are unique to that chapter. This inclusion is to enable the student to review the terms used in lecture and carry the knowledge to laboratory sessions to see how the terms apply in preparation.

Then the study questions were composed. They were written to combine the knowledge from lecture sessions with application from the laboratory period for the student to use in review outside of class.

After two or three chapters were written, they were

\(^{18}\) An example of student performance rating scale and an example of product rating scale in Appendix C.
taken to the major advisor for revisions or approval. After the chapters were approved, additional chapters were prepared, presented to the advisor, and ultimately approved in the same fashion.

After all chapters had been written and approved, the introduction was prepared to include a stating of the rules and guidelines for a laboratory class. Previously these rules had been given verbally rather than written for the student's use. The rules are essential for good sanitation, safety for the student and for compliance with the Kentucky Department of Health for food that is prepared in a public place and/or for public consumption. The introduction to the manual also contains information relative to the special needs of students new to the food area. 19

Development of the Appendix

During the writing of the chapters, the need for inclusion of some very basic information became apparent. An appendix was developed to include examples of various tools and methods used in food preparation. This information would be necessary for the student with no background in the food area. The majority of the students would not need to have this information included in the laboratory session, but could use the information individually as a review.

19Introductory chapter in Appendix A.
From a suggestion made by the major advisor, an individual was contacted to sketch the tools and examples thought to be the most helpful for all students. The identification of the most common tools and methods was all that would be needed. Some information was written explaining the use and methods on a few items. The sketches and explanations were approved by the major advisor.

Summary

The completed manual was reviewed and approved by the major advisor and the research advisory committee.

The final copy of the manual to be used in the laboratory will be in printed form, similar to the method used with the Basic Foods by June Gates and Basic Foods by the New Mexico State Department of Education manuals. This form would allow students to remove rating scales to be turned in when necessary and to replace them in the original section of the manual after evaluation.
IV. PROCEDURE FOR IMPLEMENTATION AND EVALUATION

Implementation Time Table

The purpose of this specialist project was the writing of a food manual to be used in the introductory food course at Western Kentucky University. The following time schedule has been developed for implementation and evaluation of the food manual:

Spring, 1978
1. Apply for copyright.
2. Finalize agreement with publisher.

Fall, 1978
1. First semester to be used as the adopted laboratory text.
2. First evaluation by students and teachers.

Spring, 1979
First opportunity for observable information gathered from subsequent courses.

Fall, 1981
First opportunity for feedback from graduates.

Fall, 1982
1. First opportunity for feedback from employed first year dietitians.
2. Evaluation of data by appropriate area coordinators.
3. Revision begun.
Spring, 1983  Negotiate new agreement with publishers for revised manual.

Fall, 1983  Revised manual adopted as laboratory text.

Although the time interval seems to be rather long, the contract with the publisher states the manual must be in use without revisions for three school years. This time interval provides ample time for collecting evaluation data in sufficient quantity to be a valid indication of the extent to which the goals were met.

**Evaluation**

At the conclusion of the course the students will respond to a questionnaire concerning the helpfulness of the manual as both a laboratory and study guide. The students will indicate the extent to which they felt their needs were met while working to achieve course objectives. This same procedure will be followed at the close of each semester the manual is in use as the adopted text.

The teacher evaluation will include the use of a classroom observation checklist to identify the use of desirable techniques of preparation and application of knowledge in skill development. Product evaluation will be accomplished by using the rating scales provided in the Food Science manual.

A questionnaire will be developed for the next stage of evaluation involving the graduates in Dietetics, Home Economics Education, and Institution Administration.
Respondents will be asked to indicate the extent to which they feel the basic food manual met their needs as professionals.

A separate questionnaire will be sent to the students who chose Food Science as an elective and the General Home Economics minors. This group will be asked to respond to the usefulness of the basic food manual in solving individual food preparation problems. In addition the students will be asked whether they feel those needs could have been met better by a separate course for non-majors.

Data from each group of respondents will be tabulated on master data sheets. It will be examined to determine: (1) the expressed effectiveness of the Food Science manual in conveying knowledge of basic skills, (2) whether stated objectives in the manual were consistent with current food trends, and (3) the revisions needed in the manual to meet modern food needs and trends.

The original purpose of the manual was to improve the way the basic skills are taught. The evaluation data will be used for further improvement in light of the unique needs and purposes of the Food Science course and should supply appropriate evidence of the extent to which the desired goals were attained.

Summary

There is a need at Western Kentucky University for a food manual to meet the needs of the introductory
food course. Several manuals used in other colleges and universities were reviewed but did not meet the needs of the students at Western Kentucky University. The students of this class come with various backgrounds of experience in the food area and have widely diverse personal goals. The manual was prepared to meet the needs of Institution Administration: Hotel-Motel Management, Institution Administration: Restaurant Management, Dietetic, Home Economics Education, and General Home Economics students as well as students desiring an elective in the food area.

The project was limited to the development of a manual and did not include the formal evaluation. Suggested methods to be used in implementation and evaluation, however, were included.
APPENDIX A

INTRODUCTION TO MANUAL
A food laboratory is an extension of a food lecture class. In the lecture class you are receiving the background information needed on what is to be prepared. You will learn: (1) how to select ingredients; (2) why the ingredients are needed; (3) why specific methods are used in preparation; and (4) how to know when the product prepared is a quality product. If it is not a quality product you will learn why it is not the product desired, and what happened in preparation that needs to be corrected.

As with any learning situation there are procedures that students are expected to follow in each lab session. These procedures are:

1. Wear proper lab attire which consists of a clean lab coat or uniform, an approved hair restrainer and comfortable, low-heeled, enclosed shoes (no sandals).

2. Do not comb or touch hair at any time in the lab.

3. Place books, notebooks, coats and other personal belongings in areas designated.

4. There will be plenty of chairs or desks in the lab, therefore at no time will anyone use the counters of work units or supply areas as seats.

5. Wash hands before handling any food. Dry hands on paper towels and not on the tea towels.

6. Spoons, beaters, rubber spatulas, or other utensils used for stirring, blending, or food preparation are not to be licked.
7. Any spoon, fork, or fingers placed in the mouth must be washed before proceeding with food preparation.

8. At no time is the serving spoon to be used for tasting purposes.

9. When assembling ingredients from the supply area, use a tray thereby saving steps and possibly preventing spilled ingredients.

10. Keeping a clean unit is part of good management. Be sure to clean as you go along as well as at the end of lab.

11. When handling hot dishes and containers use dry hot pan holders and not tea towels.

12. Place cover over food disposer unit. Remove only when filling, then be sure only items the disposer can handle are placed in the disposer.

13. In replacing items used, return only in designated area thus making the lab efficient for all students.

14. Some utensils have specific purposes; some have several uses. Know the name and uses of the major utensils. (See appendix for additional help).

15. Before starting preparation be sure you have: (1) read all recipes, (2) checked all ingredients, (3) checked all utensils, (4) checked temperatures used and suggested preparation and cooking time needed for each. Then manage your time and equipment efficiently.

Dividing recipes is an important part of preparation for lab. Some basic facts to learn are:

- 3 teaspoons = 1 tablespoon
- 4 tablespoons = 1/4 cup
- 5 tablespoons plus one teaspoon = 1/3 cup
- 8 tablespoons = 1/2 cup
- 12 tablespoons = 3/4 cup
- 16 tablespoons = 1 cup
- 10 tablespoons plus 2 teaspoons = 2/3 cup
2 cups = 1 pint
2 pints = 1 quart

Some common abbreviations are:

T = tablespoon
t = teaspoon
c = cup
pt. = pint
qt. = quart

In most recipes there will be times given for cooking or baking. These times are not set for a rule but are only estimated times to be used as guidelines. Check products for doneness using the times as guidelines only.

Be sure you understand the terms used in the recipe. The appendix of this manual has some of the terms illustrated and defined. Use your textbook for terms not listed in the manual appendix.

Your manual is set up to be a learning guide for you. Listed first in each unit are the objectives for that lab. The psychomotor (skills) objectives are what will be your goal to learn in the lab. The cognitive (knowledge) objectives are what you need to know as background for a successful lab session.

Second in each unit is your vocabulary list. These terms will have been used in lecture as well as in the assigned readings from your textbook. It will be to your benefit to learn these terms as part of your preparation for lab.

Then come your recipes. The procedures for these have already been stated. Following the recipes in each unit
are study questions. These are to help you after lab to
review the learnings from lab and the facts from lecture.

This manual is designed to aid you in learning the
science of food. To gain the most from the time spent in
class and lab use the manual, its study suggestions and
helps along with your textbook.
APPENDIX B

OBJECTIVES
At the completion of lab you should be able to:

1. Demonstrate skillfully the methods used to prepare a quality cup of coffee.

   **Psychomotor** - Use proper grind of coffee with proper method in preparing coffee.

   **Cognitive** - Describe the various preparation methods possible in making coffee.

   - Indicate the proper grind of coffee for use in the various methods of preparing coffee.

   - Explain the need for sanitary equipment in preparation of coffee.

   - Evaluate prepared coffee by the predetermined standards stated in class.

2. Demonstrate skillfully the methods used to prepare a quality cup of tea.

   **Psychomotor** - Apply stated principles in the preparation of tea by differing methods.

   **Cognitive** - List the various types of tea.

   - Describe the methods for preparing tea.

   - Categorize the color and flavor of the tea to the type of tea used.

   - Evaluate prepared tea by the predetermined standards stated in class.

3. Demonstrate skillfully the method used to prepare a quality cup of hot chocolate or hot cocoa.

   **Psychomotor** - Prepare the hot chocolate and/or hot cocoa according to directions.
- Correct procedures when an inferior product is produced.

Cognitive (Knowledge to be gained)
- Describe the steps necessary for preparing hot chocolate.
- Explain the difference in preparing hot cocoa and hot chocolate.

4. Rate variety beverages according to previously determined standards of quality.

Psychomotor (Skill to develop)
- Modify flavors during preparation to give most pleasant new beverage.

Cognitive (Knowledge to be gained)
- Name beverages that could be combined to give a pleasant new beverage.
- Identify unbalanced flavors of combined beverages.
Upon completion of lab you should be able to:

1. Evaluate cooking procedures to attain quality in flavor and texture of vegetables.

<table>
<thead>
<tr>
<th>Psychomotor</th>
<th>Cognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Skill to develop)</td>
<td>(Knowledge to be gained)</td>
</tr>
<tr>
<td>Justify preparation methods used for specified vegetables.</td>
<td>Define terms related to vegetable preparation.</td>
</tr>
<tr>
<td></td>
<td>- Identify acceptable standards for cooked vegetables.</td>
</tr>
<tr>
<td></td>
<td>- Describe color changes from acids and alkalines.</td>
</tr>
<tr>
<td></td>
<td>- Identify the acid and alkaline conditions in food preparation.</td>
</tr>
<tr>
<td></td>
<td>- Discriminate between proper and improper cooking methods for good color retention.</td>
</tr>
</tbody>
</table>

2. Apply principles of food preparation to the uses of vegetables in the menu throughout the day.

<table>
<thead>
<tr>
<th>Psychomotor</th>
<th>Cognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Skill to develop)</td>
<td>(Knowledge to be gained)</td>
</tr>
<tr>
<td>Follow recipes for using vegetables in different ways.</td>
<td>Describe ways vegetables are generally used in the menu.</td>
</tr>
</tbody>
</table>
FRUITS

Upon the completion of lab you should be able to:

1. Demonstrate skillfully the methods used to control enzymatic browning in fresh, low acid fruits.

   Psychomotor - Use the appropriate method to prepare the fruits available.
   (Skills to develop)

   Cognitive - Identify the low acid fruits.
   (Knowledge to be gained) - Explain the reactions causing browning to occur.
   - Predict best method for purposed use of the fruit.

2. Judge the proper methods used in cooking fruits with differing amounts and quality of cellulose.

   Psychomotor - Select fruits of high versus low amounts of cellulose.
   (Skills to develop)
   - Practice methods of controlling the quality of fresh and dried cooked fruits.

   Cognitive - Explain use of sugar in strengthening cellulose structure.
   (Knowledge to be gained) - Justify the timing in adding sugar according to the fruit being prepared.

3. Apply principles of food preparation to the uses of fruits in the menu throughout the day.

   Psychomotor - Follow recipes for using fruits in different ways.
   (Skills to develop)
   - Create attractive, appetizing dishes with fruits provided.

   Cognitive - Recall basic principles of food preparation.
   (Knowledge to be gained)
**SALADS**

At the completion of lab you should be able to:

Demonstrate proper procedures for preparing a high quality attractive salad.

<table>
<thead>
<tr>
<th>Psychomotor (Skills to develop)</th>
<th>Cognitive (Knowledge to be gained)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepare attractive, good quality salads from recipes given.</td>
<td>List factors determining attractive salads of high quality.</td>
</tr>
<tr>
<td>Create original attractive, good quality salads with a minimum amount of guidance and a limited amount of ingredients.</td>
<td>Identify the various salad greens.</td>
</tr>
</tbody>
</table>
EGGS

At the completion of lab you should be able to:

Demonstrate skill in the various methods of egg preparation.

Psychomotor - Prepare the eggs in the various methods designated.
(Skill to develop)

Cognitive - Describe the methods of egg preparation.
(Knowledge to be gained) - Identify the quality of egg that should be used in the various methods.
- Evaluate the quality of the finished products.
STARCHES - THICKENERS

At the completion of lab you should be able to:

1. Demonstrate skillfully the methods used in food preparation when starch is used as the thickener.

   Psychomotor (Skills to develop) - Select the right starch for its purpose in food preparation.
                                                                 - Prepare a smooth white sauce of proper consistency.
                                                                 - Perform efficiently while preparing a quality product when a starch thickener is only one step in preparation.

   Cognitive (Knowledge to be gained) - Name the various types of starches used as thickeners.
                                                                 - Identify the steps used in combining starch with other ingredients to achieve a smooth high quality product.

2. Proceed confidently while combining principles of food thickeners and foams into a single high quality product.

   Psychomotor (Skills to develop) - Show dexterity in combining ingredients of varying temperatures.
                                                                 - Demonstrate proper method of folding a product into an egg white foam.

   Cognitive (Knowledge to be gained) - Identify another thickener used in food preparation besides starch.
                                                                 - Explain the affects of agitation on the formation of a gel structure.
                                                                 - Name the various types of starches used as thickeners.
                                                                 - Identify the steps used in combining starch with other ingredients to achieve a smooth high quality product.
PASTRY - PIE

At the completion of lab you should be able to:

1. Master the skill of pastry making.
   - Psychomotor (Skill to develop) Demonstrate the proper methods of handling a pastry dough.
   - Cognitive (Knowledge to be gained) Describe the purpose of the ingredients in pastry.
     - Relate the proportion of ingredients to the quality of the final product.
     - Evaluate the final product by quality standards stated in class.

2. Maintain efficiency in completing the pie.
   - Psychomotor (Skill to develop) Organize time and materials in putting together the three stages of a cream pie.
   - Cognitive (Knowledge to be gained) Recognize quality in cream puddings when used as pie filling.
     - Summarize steps in making a meringue.
     - Identify the various levels of egg white foams in relation to addition of sugar.
     - Evaluate the final product by the predetermined standards.
QUICK BREADS

At the completion of lab you should be able to:

1. Control the type of product produced through the varying of ingredients and their proportions.

   Psychomotor - Follow directions in preparing quick breads designated.
   (Skills to develop) - Use final products to point out reasons for success or failure in relation to ingredients.

   Cognitive - Name the types of flour available for use in quick breads.
   (Knowledge to be gained) - List the ingredients used in quick breads.
   - Describe the purpose of the ingredients in quick breads.
   - Explain the relationship of proportions of ingredients and the type of product being made.

2. Demonstrate the importance of proper manipulation of ingredients.

   Psychomotor - Prepare batters and doughs according to designated methods.
   (Skill to develop) - Explain the purpose of the method in handling batters and doughs.

   Cognitive - Evaluate the final product by the predetermined standards for quality.
   (Knowledge to be gained)
YEAST BREADS

At the completion of lab you should be able to:

1. Manage yeast breads according to the time you have available for preparation.

**Psychomotor** (Skill to develop)

- Prepare yeast products of varying ingredients and proportions.

**Cognitive** (Knowledge to be gained)

- Describe purposes of the ingredients in yeast products.

- Relate the variation in quantity of ingredients to the purpose of the ingredient.

2. Demonstrate a high degree of skill in preparing quality yeast products.

**Psychomotor** (Skills to develop)

- Develop skill in manipulating the dough in the kneading process.

- Create attractive, high quality breads with the dough and batter made.

**Cognitive** (Knowledge to be gained)

- Describe the difference in the quality of a batter bread versus a kneaded bread.
CAKES AND FROSTING

At the completion of lab you should be able to:

1. Demonstrate skillful methods in preparing high quality shortened cakes.

   - Psychomotor (Skill to develop)
     - Prepare the shortened cake by the designated recipe.

   - Cognitive (Knowledge to be gained)
     - Describe the purpose of the ingredients in a shortened cake.
     - Relate the various methods in combining ingredients to the characteristics of the final product.
     - Evaluate the product using criteria set in class.

2. Demonstrate skillful methods in preparing high quality foam cakes.

   - Psychomotor (Skill to develop)
     - Prepare the foam cake by the designated recipe.

   - Cognitive (Knowledge to be gained)
     - Describe the purpose of the ingredients in a foam cake.
     - Explain the need for sanitary equipment in the preparation of foam cakes.
     - Evaluate the product using criteria set in class.

3. Proceed with ease and assurance in frosting a cake.

   - Psychomotor (Skill to develop)
     - Create a beautiful frosted cake of high quality.

   - Cognitive (Knowledge to be gained)
     - Explain the purposes of the frosting for cakes.
     - Relate the various steps in preparing the cake for frosting and the frosting of the cake.
SUGAR COOKERY AND OTHER SWEET PRODUCTS

At the completion of lab you should be able to:

1. Maintain efficiency in preparing crystalline and amorphous candy.

   Psychomotor (Skills to develop)
   - Prepare crystalline and amorphous candies according to directions given.
   - Compare characteristics of crystalline and amorphous candies that are prepared.

   Cognitive (Knowledge to be gained)
   - Define amorphous and crystalline candy.
   - Explain the need for good sanitation and exactness in sugar cookery.
   - Evaluate the final products according to the standards set.

2. Advance with assurance to the preparation of other sweet products.

   Psychomotor (Skills to develop)
   - Apply good principles of food preparation to the recipes given.
   - Develop appropriate work habits in combining management of food products, equipment and time.

   Cognitive (Knowledge to be gained)
   - Relate similarities in cookie type preparation with that of candy making and quick breads.
GELATINS

At the completion of lab you should be able to:

Proceed skillfully through the techniques required for successful use of gelatins.

Psychomotor  - Repare gelatins for differing purposes in the menu.
(Skill to develop)

Cognitive  - Describe the purposes of gelatin in food preparation.
(Knowledge to be gained)

- Explain the factors effecting the strength of the gel.
- Relate steps for successful removal of a gelatin from the mold.
- Justify the use of the various ingredients and procedures within recipes.
APPENDIX C

RATING SCALES
RATING SCALE FOR JUDGING TEA

Directions: Rate your product by recording the rating in the column under "Student Evaluation". If the rating falls between the description labeled 3 and 5, the rating should be 4. The same applies to a rating of 2. Other comments about the characteristics of the product should be placed in the column under comments. Total your points at the end under student evaluation.

<table>
<thead>
<tr>
<th>Color and Appearance</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Very cloudy-color too light or dark to be characteristic of tea type.</td>
<td>Somewhat light in color or cloudy-yet characteristic of tea type.</td>
<td>Clear-bright characteristic of tea type.</td>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flavor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Too strong or too weak. Definite bitterness.</td>
</tr>
</tbody>
</table>

Total Points: 47
### RATING SCALE FOR EVALUATING STUDENT PARTICIPATION IN LAB

Name_________________________Lab Unit_________________________

Date_________________________Subject___________________________

**Directions:** Rate yourself by recording the rating in the column under "Student Evaluation". If the rating falls between the description labeled 3 and 5, the rating should be 4. The same applies to a rating of 2. Total your points at the end under student evaluation. If you have other comments on the lab, please make them in the area so provided.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lab Attire</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Has no lab coat or uniform. If has the outfit is soiled. Has no hair restrainer and inappropriate shoes.</td>
<td></td>
<td></td>
<td>Wears buttoned lab coat or uniform that is slightly soiled; wears hair restrainer that doesn't restrain the hair.</td>
<td></td>
<td>Wears buttoned, clean lab coat or uniform; hair restrainer; appropriate shoes.</td>
</tr>
<tr>
<td><strong>Preparedness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Hasn't read procedures. No plans made; often late.</td>
<td>Read procedures but has not planned work schedule. Generally on time.</td>
<td></td>
<td>Has studied procedures for lab; has planned a work schedule. Always on time to lab.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Teacher Evaluation

<table>
<thead>
<tr>
<th></th>
<th>S</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Cooperation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Tries to get the easiest jobs; antagonizes partner and others.</td>
<td>Works with partner only when convenient.</td>
<td>Works well alone— not always with others.</td>
</tr>
<tr>
<td>Responsibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effort</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Makes no effort to have a quality product; just goes through the motions of lab.</td>
<td>Makes some effort to have quality products. Selects one item and doesn’t try other items.</td>
<td>Makes a sincere effort to have quality products.</td>
</tr>
<tr>
<td>Cleanliness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Unit left dirty. Equipment and appliances are not returned to proper place.</td>
<td>Unit fairly clean. Most equipment clean and in place.</td>
<td>Unit is left clean and neat. All equipment and appliances are clean and returned to proper place.</td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Has a haphazard schedule, showing no thought in planning.</td>
<td>Has a nicely planned schedule for time, equipment and products. Doesn’t work in all areas.</td>
<td>Has a well planned schedule to manage time, equipment and products.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>Independence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Demands too much help and attention. Can not use own judgement in any situation.</td>
<td>Works with little help, but has difficulty in making decisions as to what to do next.</td>
<td>Has self-confidence and works to solve problems with slight assistance.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Points:**

**Comments:**
APPENDIX D

CORRESPONDENCE
June 27, 1977

Golden Press
Western Publishing Co.
1220 Mound Avenue
Racine, Wisconsin 53404

Dear Sirs:

I am writing a food laboratory manual to be used at Western Kentucky University in the first food preparation course taught at the college level. In the past the instructors have used the entire line of the Betty Crocker's Cookbooks as references for students to use in this class as well as the food classes that follow. I would like permission to reproduce recipes from the various Betty Crocker's Cookbooks as examples in this manual. If given permission I would use the recipe and give source of the recipe as well.

In view of the time limit given me in preparing this manual I would appreciate an answer at your earliest convenience.

Sincerely,

Frances Haydon
Instructor Foods and Nutrition

cc: General Mills, Inc.
Betty Crocker's Cookbooks
July 5, 1977

Ms. Frances Haydon  
Instructor Foods and Nutrition  
Western Kentucky University  
Bowling Green, Kentucky

Dear Ms. Haydon:

We are happy to grant you permission to reprint recipes from our various Betty Crocker Cookbooks in your manual.

We would like to request, however, that credit be given to "Betty Crocker's Cookbooks, General Mills, Inc.

Thank you.

Sincerely,

Jeanne Yueng
Betty Crocker Enterprises
June 27, 1977

Meredith Corporation
P.O. Box 132
Des Moines, Iowa 50336

Dear Sirs:

I am writing a food laboratory manual to be used at Western Kentucky University in the first food preparation course taught at the college level. In the past the instructors have used the entire line of the Better Homes and Gardens Cookbooks as references for students to use in this class as well as the food classes that follow. I would like permission to reproduce recipes from the various Better Homes and Gardens Cookbooks as examples in this manual. If given permission I would use the recipe and give source of the recipe as well.

In my personal library I have the Better Homes and Gardens Encyclopedia of Cooking and would like permission to reproduce some of the recipes and charts from this set of encyclopedias in the manual as well.

In view of the time limit given me in preparing this manual I would appreciate an answer at your earliest convenience.

Sincerely,

Frances Haydon
Instructor Foods and Nutrition

cc: Better Homes and Gardens
August 30, 1977

Ms. Frances Haydon  
Instructor Foods and Nutrition  
Western Kentucky University  
Bowling Green, Kentucky

Dear Ms. Haydon:

I am sorry, but we cannot give you permission to reproduce any of the recipes from the Encyclopedia of Cooking.

We have a company policy against this practice.

Yet thank you for thinking of us.

Cordially,

Gerald M. Knox  
Editor

GKnph
June 27, 1977

Dr. Ester Winterfeldt
Head, Food Nutrition and
Institution Administration
Division of Home Economics
Oklahoma State University
Stillwater, Oklahoma 74074

Dear Dr. Winterfeldt:

I am writing a food laboratory manual to be used at Western Kentucky University in the first food preparation course taught at the college level. I would like permission to reproduce recipes from Food Preparation Manual prepared by the faculty of Oklahoma State University Food, Nutrition and Institution Administration Department. If given permission I would use the recipe and give source of the recipe as well.

In view of the time limit given me in preparing this manual I would appreciate an answer at your earliest convenience.

Sincerely,

Frances Haydon
Instructor Foods and Nutrition
BIBLIOGRAPHY


"Coordinated Undergraduate Program in General Dietetics." Department of Home Economics and Family Living, Western Kentucky University. 1976.


CORRECTION

PRECEDING IMAGE HAS BEEN REFILMED TO ASSURE LEGIBILITY OR TO CORRECT A POSSIBLE ERROR
November 10, 1977

Mrs. Francis Haydon  
Home Economics and Family Living  
Western Kentucky University  
Bowling Green, Kentucky  

Dear Mrs. Haydon,

You have permission to use information from our "Food Preparation Manual" as long as proper credit is given. Best wishes on the completion of your project.

Sincerely,

Ester Winterfeldt  
Head, Food, Nutrition and Institution Admin.  
Oklahoma State University
BIBLIOGRAPHY


"Coordinated Undergraduate Program in General Dietetics." Department of Home Economics and Family Living, Western Kentucky University. 1976.


Western Kentucky University Bulletin. Bowling Green, Kentucky: Western Kentucky University. Fall, 1976.