



Article: TRAINING PROGRAM FOR PHOTOGRAPH CONSERVATORS A PROPOSAL

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TRAINING PROGRAM FOR PHOTOGRAPH CONSERVATORS
A PROPOSAL

María Fernanda Valverde

Introduction

The aim of this project is to create a training program, based on current ideas and past experiences in the field of photograph conservation, to be applied in the education of Mexican conservators. It has the main intention, though, of arriving to an educational model that could be used by conservation educators in other countries. Basic concepts and criteria derived from the work of pioneers, educators and actual practitioners in the United States have served as guidelines in the organization of this model. This proposal is also an attempt to promote specialization and the standardization, through an academic homogenization, of the profession in different countries. Following current efforts by American educators¹, it is intended to reinforce the idea of certification, interdisciplinary collaboration, and further specialization of photograph conservators.

Objectives

Although the ultimate goal of a training program lays in its application in the education of future photo-conservators, this proposal might contribute to the definition of the field by presenting a profile and a set of knowledge to start a career in photographic conservation. It has also the objective of summarizing current ideas about photograph conservation practice and principles in a single proposal.

A reflection on the kind of knowledge and skills required to specialize and fulfill the needs of photographic collections, was necessarily the first step in the design of this program. Not only do past achievements and present situation of photographic collections were considered in this exercise, but also the "ideal" or optimum curricula for photograph conservators.

Outcome of the training program

The first task in designing a program is the definition of the outcome; that is, the various skills, attitudes and knowledge that students are supposed to acquire and demonstrate after completing the program. For

¹ Survey *Towards the Ideal Training for a Conservator of Photographs*, and paper entitled *The Coming Age of Photograph Conservation* (ICOM Committee for Conservation, 1996) by Nora Kennedy; besides the opening of the *Mellon Advanced Residency Program in Photograph Conservation*, George Eastman House, are examples of current efforts to improve the education and promote further specialization of graduate conservators.

the purpose of this training program the following definition of a photograph conservator was taken into consideration:

- ◆ Able to recognize the technical and scientific aspects involved in the production of photographic and photomechanical images.
- ◆ Capable of appreciating the historic relevance and aesthetic qualities of different photographic processes and the artistic movements that made use of them.
- ◆ Understands forms of deterioration, methods for preventing or controlling them.
- ◆ Capable of developing treatment criteria based on a professional code of ethics and a deep understanding of the materials.
- ◆ Recognizes the limits of conservation treatment.
- ◆ Able to perform preventive and remedial actions.
- Provides guidelines for the long-term preservation of photographic materials.
- ◆ Able to conduct scientific research, provide innovative ideas, communicate with colleagues and contribute to field.

Input: entering students

The academic level of graduate students in Art Conservation would be the starting point of this training program. Knowledge provided by existing programs in art conservation, such as materials science, analysis techniques, art history, paper, objects and painting conservation, etc., has been the platform for the design of this program.

Students coming from the five-year program in Conservation of Cultural Heritage, offered at the *Escuela Nacional de Conservación, Restauración y Museografía, INAH* (Mexico City), would be the candidates, in that country, for the training program in photograph conservation. Up to now the existing curricula has only included photograph preservation as an elective course at the end of the program (during the last semester). Specialization or advanced level courses are not offered in this institution or in any other institution in the country.

Apprentices or non school-trained conservators would be freely admitted in the first –introductory- period and, if fulfill the prerequisites, in the more advance periods (2nd, 3rd, 4th semesters)

STRUCTURE OF THE TRAINING PROGRAM

In order to organize the necessary skills and knowledge into series of courses, different areas of study, within and outside the actual field of conservation, were determined. Based on current training programs and opinions by American educators in photograph conservation² six areas of study were defined:

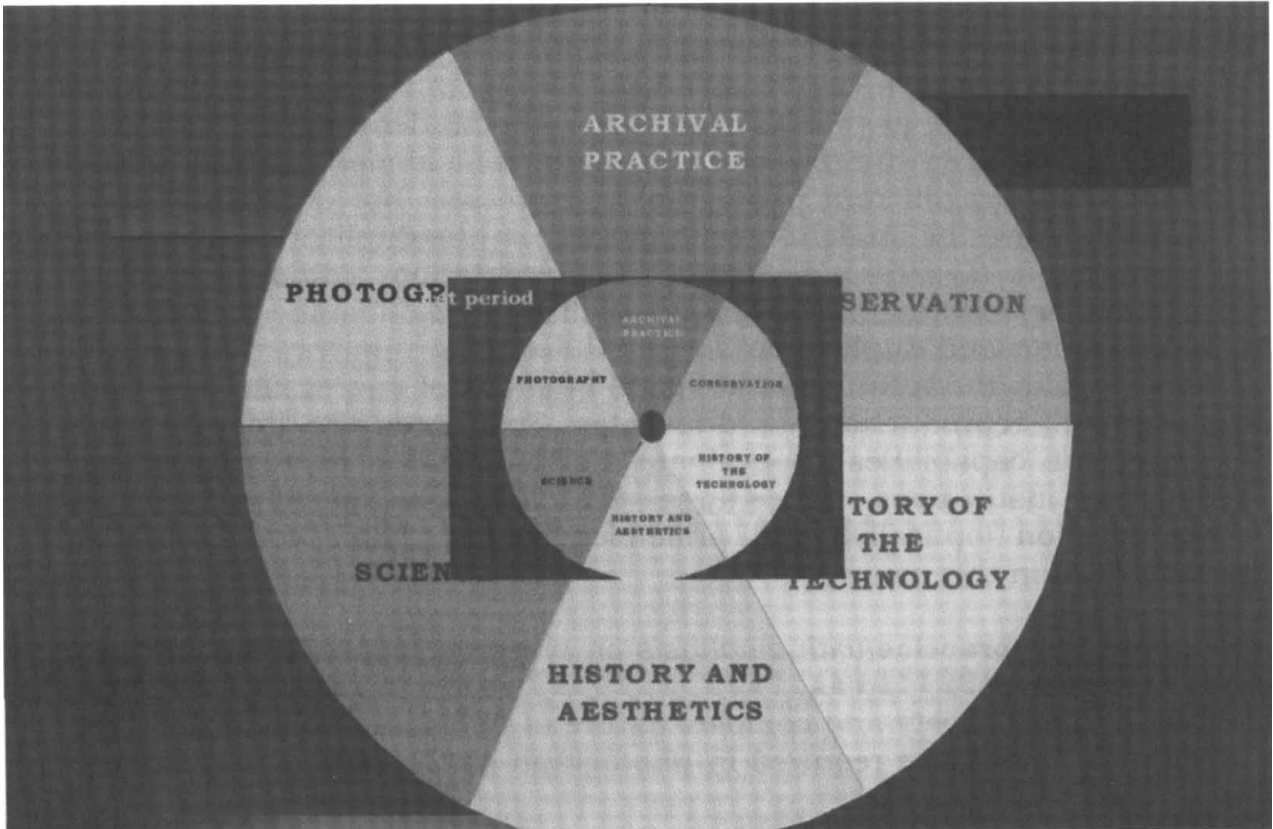
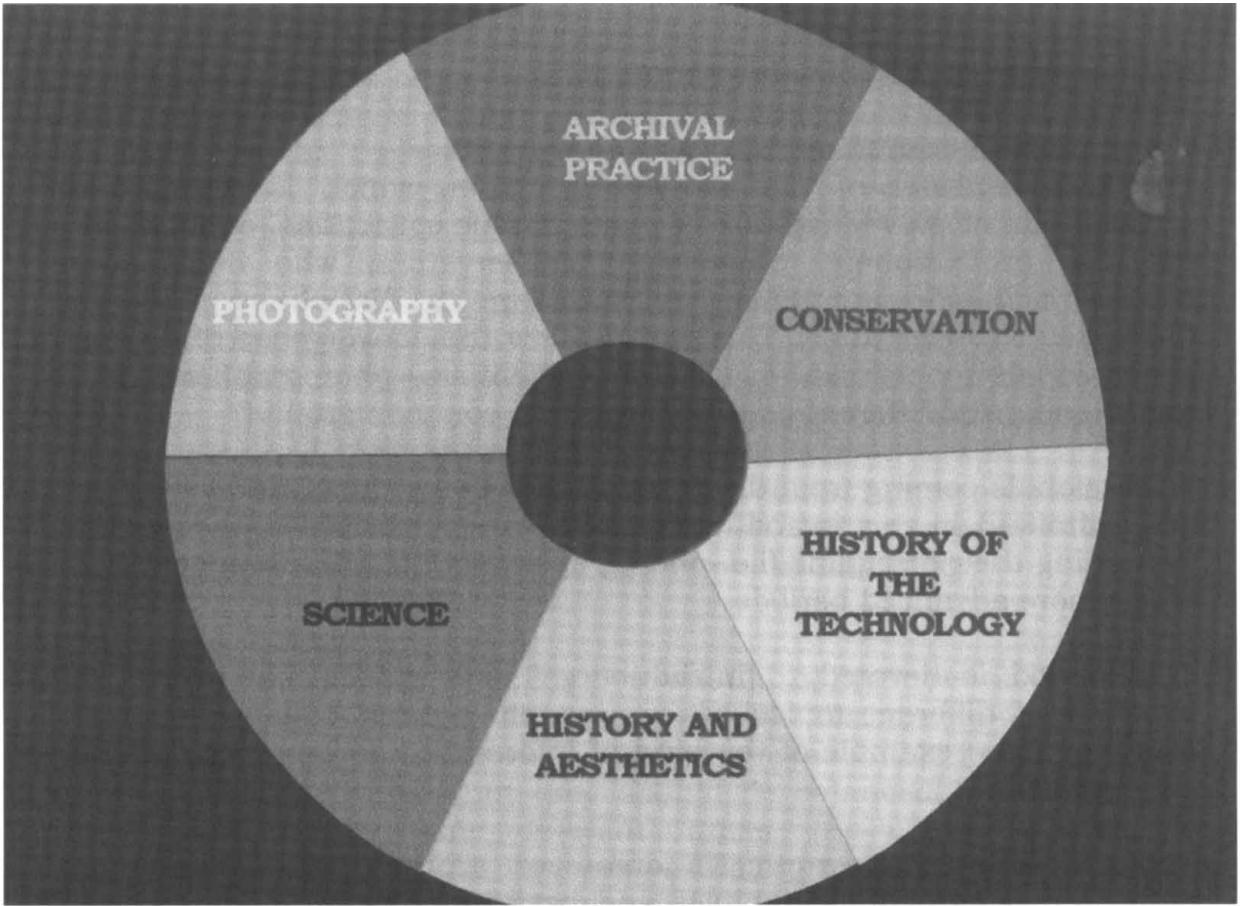
- 1) *Materials Science*
- 2) *Practical Skills in Conservation Treatment*
- 3) *Photography*
- 4) *History of the Technology*
- 5) *History of Aesthetics of Photography*
- 6) *Archival practice*

The six areas are repeated, with different content each time, through the four semesters proposed for the training program.

The content of each area was determined by the type of knowledge required to understand, preserve, reproduce, intervene, investigate, and protect, the wide variety of photographic processes that can be found in photographic collections. It became apparent in this exercise that photographic materials are grouped in a single specialty by concept (our understanding of what they are and represent) and not so by the kind of materials they are made of; since they can be made of virtually anything. It also became apparent that photographic processes define most conservation strategies and therefore should constitute the medullae of each area. Organizing the content of courses by grouping photographic processes that share technical and chronological aspects has proven successful in current training programs and short seminars. Within each photographic process, though, information should be delivered in the traditional sequence: *nature* → *deterioration* → *conservation*.

As in other conservation specialties, the reproduction of historic processes and technologies has proven to be very useful in the investigation and understanding of photographic materials, their behavior and deterioration.

² Opinions by professors Nora Kennedy, Deborah Hess Norris, Grant Romer and Douglas Nishimura, were considered for the definition and inclusion of the six areas.



MAIN ASPECTS OF THE TRAINING PROGRAM

I. Foundation course open to non conservators

The first semester of the two-year program, which is centered on preservation or preventive care of photographic collections, could be also open to professionals, other than conservators, who demonstrate interest and who are willing to specialize in disciplines related to photograph conservation. This would allow the convergence of different professionals (conservators, curators, scientists, photographers, etc.), and therefore of different points of view in a common ground.

Professionals coming from disciplines other than conservation would be only admitted in this introductory period and probably in those areas, pertaining their discipline (i.e. photography, art history, chemistry, etc.), of the more advanced periods.

This period is devoted to introductions and would only provide an overview of different topics concerning photograph conservation. The following is an example of the kind of information to be covered during the first period:

The course in *Photography* is organized around presentations and demonstrations of the principles and basic notions behind the correct reproduction and duplication of historic images. It will therefore promote the use of densitometric methods in arriving at optimal exposure and development conditions for different films. Processing for permanence should be practiced during this period.

It is not intended, at this point, to teach the students all the technical details involved in the reproduction of different kinds of prints, that is prints made by different photographic processes. Nor does this course pretend to give the student a solid practice in the duplication of historic negatives. It is rather a theoretical presentation, complemented by practical demonstrations, of the possibilities and difficulties involved in reproduction and duplication work. Students, in this way, will become familiar with the technical and visual qualities of successful (and non-successful) reproductions or duplicates. They may also improve their judgement capabilities to evaluate work done by photographers at different institutions. Procedures for correcting different types of deterioration (optically), and principles behind them, would only be mentioned in this course.

II. Archival practice (with emphasis on preservation) and photography as complementary areas

Owing to the variety and complex nature of photographic materials, the gamut of knowledge required in photograph conservation is even wider

than that required in other specialties. It was therefore necessary to add some courses that are not normally included in art conservation programs. To the traditional triptych of conservation -practice, art or cultural history and science-³ *photography* and *archival practice* were added as distinct areas.

Even though photograph conservation should be defined within the context of Art Conservation in terms of training, ethics and practice, further studies in these two areas are required to provide complete education. The lack of the experience and management skills, which can only be obtained through an every-day-work in photographic archives, has been pointed out as a drawback of art conservation programs.⁴ By adding courses on *photographic reproduction and archival practice* it is hoped to fulfill the need of cultural and archival institutions.

III. Balanced Areas

Few problems arise when topics that should be included in a training program are organized into different areas and distributed along school periods. Not only do time periods need to be reasonable for the amount of information delivered, but they should be balanced in terms of the work required for the different areas (*Science, Conservation, Photography, History of the Technology, History and Aesthetics, Archival Practice*). The amount of time invested in one area should not be much greater than the required for other areas.

IV. Periods are conclusive units

Every area should keep an internal logic within the same period and through the whole program; logic that guarantees the thematic continuity from one period to the next. However, topics introduced during each period should be covered to completion within that period.

Apart from the first period, which would provide an overview of different topics concerning photographic conservation, advanced periods have been structured as conclusive units containing different aspects of the history, technology, deterioration and conservation of photographic materials. Each period contains certain topics, which together form a basic set of knowledge on certain photographic processes (their introduction and development through history, forms of decay, and methods for conservation and preservation).

³ Hill Stoner, Joyce, "The Education and Training of Art Conservators: Teaching the Triptych of Practice, History and Science", *ICOM Committee for Conservation*, 1996.

⁴ Both needs have already been recognized by American educators and will be addressed through the Mellon Advanced Residency Program

Offering conclusive periods, instead of linked courses covering similar subjects at different levels of complexity, would give the students the flexibility of attending the four periods at different moments of their careers. This, considering that some conservators might need to alternate their studies with other professional activities. The sequence in which periods have been presented, though, should be followed to optimize the learning process in each of them.

Even when the learning process can be virtually unlimited, students would be prepared, at the end of each period, to keep increasing their knowledge on subjects they are already familiar with.

V. Areas are interconnected

Although periods are relatively independent, areas should be linked horizontally by a single theme (one photographic process a time). Concentrating only on certain photographic processes each semester would allow the students to elaborate closer and deeper analysis and hopefully solid proposals.

By presenting each photographic process from the different perspectives that the six areas can provide, students would also have a better understanding of it

The content of each area course, therefore, is not a list of subjects in which the order can be altered; contents have been organized in a sequence that allows their coincidence (or proximity) in the six areas. While studying the evolution of the daguerreotype process, for example, students would be learning in other areas about its chemistry, deterioration, treatment possibilities, housing, storage and display.

VI. Sequence of courses

Although the guiding sequence (within each period and through the whole program) is a **chronological line**, in which photographic processes appear accompanied by complementary courses, another guiding sequence, based on the **nature of photographic materials**, is prevailing the first one. Apart from the first –introductory– period, the *Scientific Area* has been organized by grouping themes that show similarities from the chemical point of view. For example, topics selected for the second period are mainly related to image forming substances and they all pertain to inorganic chemistry. While both, the third and fourth periods, include topics pertaining to organic chemistry, the third one is focused on natural polymers employed as photographic binders; and the fourth one on polymers (modified and synthetic) that have been used as photographic supports. There are other topics, such as *dye-based images* and *analytical techniques in conservation*, in the fourth

period. These, owing to their complexity were included towards the end of the program.

Conclusion

Photograph conservation should keep contact and learn from other specialties but should be recognized as a distinct discipline among the many fields of conservation.

This project is an effort to synthesize current trends, efforts and ideas in a single proposal for a curriculum in photograph conservation. It is not only a theoretical exercise but suppose the introduction of a training program, either in synthesized or complete version, in Mexico; and hopefully in other countries where specialists in photograph conservation are needed. The first period could be introduced without major modifications; lectures, laboratory sessions, reading and bibliography have been planed and organized.

Interdisciplinary collaboration though, between conservators, photo historians, scientists, photographers, and curators, is essential for the development of a consistent program and a field in photograph conservation.

Acknowledgments

This project was possible thanks to the guidance, advice and educational opportunities provided by Deborah Hess Norris, Nora Kennedy, Douglas Nishimura, James Reilly and Grant Romer.

1st period

Science	Conservation	Photography	History of the technology	History and Aesthetics	Archival practice
<p>Light and matter:</p> <ul style="list-style-type: none"> -Principles of image formation -Light sensitive compounds -Photochemical reactions 	<p>Theory of Conservation</p>	<p>Principles of sensitometry and densitometry.</p> <ul style="list-style-type: none"> -Film response -Interpretation of characteristic curves 	<p>Identification of photographic and photomechanical processes</p>	<p>History of photography</p> <ul style="list-style-type: none"> -Modern sources 	<p>Introduction to environmental control</p>
<p>Components in photographic materials:</p> <ul style="list-style-type: none"> -Supports, binders, image-forming substances, coatings 	<p>Enclosure design:</p> <ul style="list-style-type: none"> -Criteria for the selection of materials and adhesives (papers, plastics, tapes, etc) -Adaptation of different designs 	<p>Overview of copying and duplication techniques (BW):</p> <ul style="list-style-type: none"> - Basic equipment (cameras, light sources, lenses, filters, enlargers) - Photographic materials (BW films and papers) - Film processing (quality and contrast control) 	<p>Reproduction of historic photographic processes:</p> <ul style="list-style-type: none"> -Salted paper 	<p>Critical essays on photography</p>	<p>Storage systems for photographic materials</p>
<p>Deterioration of photographic images:</p> <ul style="list-style-type: none"> -Causes of deterioration: (biological, chemical, mechanical) 	<p>Matting and mounting:</p> <ul style="list-style-type: none"> -Hinging techniques – Exhibition mounts 	<p>Processing for permanence:</p> <ul style="list-style-type: none"> -Role of each processing bath -Toning methods -Test methods for detecting hypo residues 	<p>Evolution of photographic processes through the History</p>	<p>Photographic theory and criticism</p> <ul style="list-style-type: none"> Critical essays on photography 	<p>Preservation strategies</p>
<p>Deterioration of image-forming substances (Ag and non-Ag)</p>					
<p>Deterioration of binders and supports</p>					

2nd period Science

	Conservation	Photography	History of the technology	History and Aesthetics	Archival practice
Photo-chemistry silver-halide emulsions – chemical and spectral sensitization; -latent image theory -Developers and fixers	Theory and practice of photograph conservation -Overview of treatment possibilities and limitations	Photographic documentation -Condition and treatment report; -photography under the microscope	Origins of Photography -Photogenic drawing; -calotype; -salted Paper	The Camera Obscura: its evolution and influence on art	Storage, handling and display of early photographic processes: -Effects of RH, temp. and light
Intensification and reduction of image density -Chemical "restoration" of negatives and prints – Intensification of faded prints; - image particle: changes in size and morphology	Chemical restoration of silver images -Reduction; "Restoration", and intensification of image density (different methods) -Predictability, practical and ethical concerns	Reprographic techniques (B/W prints) -Lighting systems; - cameras and lenses; -film processing; -densitometric curves; -contrast control	Origins of Photography: Introduction and evolution of the daguerreotype process	Calotype and salted paper Artistic intention	Environmental control systems -RH and temperature
Chemistry of toning -Stability of different silver compounds; -Silver replacement by noble metals; -Silver replacement by less stable compounds (organic and inorganic) -	Conservation of cased images: Ambrotypes and Tintypes	Printing copy negatives -Enlargers; filters for variable contrast paper; -Photographic paper developers	Reproduction of historic photographic processes: Ambrotypes and tintypes	The daguerreotype process: -Introduction and popularization	Curatorial issues: -Acquisition policies
Physics-chemistry of metals -Daguerreotype process -Corrosion theory -Organic-metallic complexes -Cleaning methods for daguerreotypes	Daguerreotypes -Cleaning methods		Reproduction of historic photographic processes -The daguerreotype process:	Collodion wet plate -Introduction, variations and applications of the processes	
Chemistry. of Iron- based processes -Cyanotype, Platinum and Palladium prints; Kallitype	Conservation of iron-based images		Evolution of iron-based processes	Aesthetics of platinum prints, van dyke and cyanotypes	Storage and exhibition of iron-based prints
Glass decomposition	Collodion glass-plates and other glass-based images				
Deterioration of image-forming substances					

3rd period

Science	Conservation	Photography	History of the technology	History and Aesthetics	Archival practice
<p>Chemistry of polymers (photographic binders) -Polysaccharides; proteins; collodion.</p>	<p>Conservation treatment of paper-based photographic materials -Binder considerations; -baryta layers; - surface qualities</p>	<p>"Corrective reproduction" of faded and discolored prints -Color filters</p>	<p>Introduction and succession of photographic binders -modifications; -addition of intermediate layers; - hardeners; -protective coatings</p>	<p>Artistic movements -Impressionism</p>	<p>Collection management: -Cataloging and access</p>
<p>Coating materials -Oils; waxes; resins</p>	<p>Conservation treatment of coated and hand-colored photographic prints -Technical and ethical considerations</p>	<p>Printing techniques</p>	<p>Reproduction of historic photographic processes: Albumen paper, collodion and gelatin print out papers Review of primary bibliographic sources</p>	<p>Portrait photography</p>	<p>Storage and display: Requirements for different photographic and photomechanical prints</p>
<p>Bichromated colloids (pigment processes) Gum bichromate; carbon print; carbro; bromoil</p>	<p>Conservation treatment of pigment photographic prints -Binder considerations</p>	<p>Color photography -Light sources; color temperature; lighting systems</p>	<p>Reproduction of historic photographic processes Carbon print; -gum bichromate; - bromoil</p>	<p>Industrialization and expansion of photography</p>	<p>Lighting systems</p>
<p>Chemistry of photo-mechanical prints -Collotype; Woodburytype; Photogravure;</p>	<p>Conservation treatment of photo-mechanical prints</p>	<p>Duplication of color slides</p>	<p>Photomechanical prints: introduction and spreading</p>	<p>Pictorial photography</p>	<p>Pest control during storage</p>
<p>Mixed media and modern "alternative processes"</p>					

4th period

Science	Conservation	Photography	History of the technology	History and Aesthetics	Archival practice
<p>Chemistry of polymers (Film supports) -Cellulose derivatives; - polyester.</p>	<p>Conservation of film-based photographic materials</p>	<p>Duplication of negative collections</p>	<p>Introduction and succession of film supports -Anti-halo and subbing layers, -</p>	<p>20th century photography -Modernism</p>	<p>Collection management: -Access to negative collections</p>
<p>Deterioration of film supports -Autocatalytic degradation</p>	<p>Seminar on conservation theory -Ethical and philosophical considerations</p>	<p>Corrective duplication of discolored negatives</p>	<p>History of color technologies Autochrome; -Dye transfer</p>	<p>20th century photography -Surrealism -Photo-reportage</p>	<p>Survey strategies for film collections</p>
<p>Chemistry of dye-based images -Color photography (different technologies); - digital prints</p>	<p>Conservation treatment of color photographs -Dye stability</p>	<p>Digital image applied to the reproduction of photographic collections -</p>	<p>History of color technologies Dye bleach; -dye diffusion -chromogenic development</p>	<p>Photographic theory and criticism Critical essays on photography</p>	<p>Storage and display of color materials -Medium and long term preservation</p>
<p>Analytical techniques applied to photograph conservation -Incubation tests; -changes in chemical, physical and mechanical properties</p>	<p>Research project</p>	<p>Digital image applied to cataloging and access</p>	<p>Digital prints and mixed media</p>	<p>20th century photography Postmodernism</p>	<p>Emergency plans and disaster recovery</p>