# Plan études Bachelor

Study plan Bachelor

haute école neuchâtel berne jura — conservation restauration neuchâtel

## Bachelor of Arts HES-SO in Conservation, 180 ECTS, 2019-2022

**All courses are evaluated on a regular basis (written or oral examinations, written documentations, exercises and laboratories, presence).**

**conservation-restauration@he-arc.ch, +41 (0)32 930 19 19**

| Module | Coef unit | Module / Unit titel | Courses description | Teacher | Course hours BA[2] | ECTS pro Semester 180 — S1: 24 | S2: 36 | S3: 24 | S4: 36 | S5: 30 | S6: 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **AC1** | **180** | **Conservation 1** | | | **100** | **6** | | | | | |
| AC1.1 | 0.3 | Managing collections and their environment 1 | Physics of buildings<br>Environmental basics: Relative Humidity, Temperature.<br>Measurements and tools | TJA | 12 | | | | | | |
| | | | Principles of preventive conservation.<br>Interaction of objects with their environment. | NDU | 16 | | | | | | |
| AC1.2 | 0.4 | Visual documentation 1 | Computer tools | TJA | 8 | | | | | | |
| | | | Drawing | PMY | 8 | | | | | | |
| | | | Photography in studio and on site | PMY | 16 | | | | | | |
| | | | Introduction to microscopy for conservators | AME | 12 | | | | | | |
| AC1.3 | 0.3 | Introduction to materials used for artifacts 1 | Ceramic, glass 1 - material, technology and degradation processes | KVA | 16 | | | | | | |
| | | | Mosaics 1 - material and degradation processes | Chantriaux | 4 | | | | | | |
| | | | Polymers and resines 1 - material and degradation processes | ADO | 8 | | | | | | |
| **AH1** | **180** | **Humanities 1** | | | **76** | **6** | | | | | |
| AH1.1 | 0.3 | History of art and culture 1 | Antiquity | HDE | 5 | | | | | | |
| | | | From the "big bang" to our days, geographical survey, Paleolitic, neolitic, protohistory | AGM | 19 | | | | | | |
| AH1.2 | 0.4 | Written documentation and methodology 1 | Method of documentation, assessment of the conditions of conservation, establishment of a repository and choice of indicator | NDU | 28 | | | | | | |
| AH1.3 | 0.3 | Interdisciplinary studies 1 | Ethnographic object and Society | AGM | 8 | | | | | | |
| | | | Work of art and History : case studies | Celio | 8 | | | | | | |
| | | | Technological objects and history 1 | JBO | 8 | | | | | | |
| **AN1** | **180** | **Natural sciences 1** | | | **96** | **6** | | | | | |
| AN1.1 | 0.4 | Basics in Chemistry 1 | Composition and binding in materials ; Stoichiometry<br>Thermodynamic and kinetic of chemical reactions ; Chemical equilibrium | ADO | 36 | | | | | | |
| AN1.2 | 0.3 | Basics in Physics 1 | Heat, Geometrical Optics.<br>Revisions in Algebra and Geometry | FGO | 24 | | | | | | |
| AN1.3 | 0.1 | Introduction to properties of materials 1 | Inorganic material | ADO | 12 | | | | | | |
| AN1.4 | 0.2 | Health and safety 1 | Toxic agents, health and safety in conservation, laboratory safety<br>Documentation of laboratory work<br>Laboratory materials and laboratory instruments | Gerber | 8 | | | | | | |
| | | | Introduction to Basic Life Support and First aid | Seghairia / Mayeur | 12 | | | | | | |
| AN1.5 | sans éval. | | Basics in Maths : support course open to every CR students | FGO | 4 | | | | | | |
| **AW1** | **180** | **Conservation workshop 1** | | | **152** | **6** | | | | | |
| AW1.1 | 0.3 | Environmental basics | Monitoring and monitoring tools, data capture with Excel. | TJA | 44 | | | | | | |
| AW1.2 | 0.4 | Ceramic | Project management : examination, diagnostic, propositions, documentation<br>Cleaning Adhesives and coating Labelling<br>Visits : handworkers, workshops, museum collections, laboratories | KVA | 64 | | | | | | |
| AW1.3 | 0.2 | Moulds and copies | | Hug | 36 | | | | | | |
| AW1.4 | 0.1 | Basic tools in CR | | MRA | 8 | | | | | | |

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| | | | | | | ECTS pro Semester | | | | | |
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| | | | | | | 180 | | | | | |
| | | | | | | 24 | 36 | 24 | 36 | 30 | 30 |
| **AC2** | **180** | **Conservation 2** | | | **61** | | **6** | | | | |
| AC2.1 | 0.4 | Managing collections and their environment 2 | Processus, documentation and terminology in CR | RBE | 4 | | | | | | |
| | | | Processus, documentation and terminology in CR | ACU | 4 | | | | | | |
| | | | Collections management system and documentation in CR | Brodard | 14 | | | | | | |
| | | | Environmentatl basics: light and pollutants. Measurements and tools | TJA | 3 | | | | | | |
| AC2.2 | 0.3 | Visual documentation 2 | Computer : image processing | PMY | 8 | | | | | | |
| | | | Drawing | PMY | 8 | | | | | | |
| AC2.3 | 0.3 | Introduction to materials used for artifacts 2 | Vegetal, animal and composite materials - materials, technology and degradation processes | Goron | 20 | | | | | | |
| **AH2** | **180** | **Humanities 2** | | | **76** | | **6** | | | | |
| AH2.1 | 0.3 | History of art and culture 2 | Early Middle Ages, Late Middle Ages | HDE | 24 | | | | | | |
| AH2.2 | 0.4 | History, ethics and theory of conservation | Method of documentation, assessment of the conditions of conservation, establishment of a repository and choice of indicator | NDU | 28 | | | | | | |
| AH2.3 | 0.3 | Interdisciplinary studies 2 | Ethnographic object and Society | AGM | 8 | | | | | | |
| | | | Technological objects and history 2 | JBO | 8 | | | | | | |
| | | | Work of art and History : case studies | Celio | 8 | | | | | | |
| **AN2** | **180** | **Natural sciences 2** | | | **72** | | **6** | | | | |
| AN2.1 | 0.5 | Basics in Chemistry 2 | Acids and bases; redox reactions, oxydation and reduction, electrochemistry. | ADO | 36 | | | | | | |
| AN2.2 | 0.3 | Basics in Physics 2 | Introduction to electromagnetism | FGO | 24 | | | | | | |
| AN2.3 | 0.2 | Introduction to properties of materials 2 | Organic materials | ADO | 12 | | | | | | |
| **AW3** | **180** | **Conservation workshop 3** | | | **164** | | **6** | | | | |
| AW3.1 | 0.6 | Collections conservation survey and monitoring 2 | Climate studies. Collections conservation assessment. Long term storage materials. Handling and transportation. | TJA | 96 | | | | | | |
| | | | Object labelling or marking. Inventory number | Kissel | 4 | | | | | | |
| AW3.2 | 0.3 | Packing 1 : Conservation storage materials and systems | Packing system, material working (synthetic polymers, wood) | Boulangé | 48 | | | | | | |
| AW3.3 | 0.1 | Materials identification tests | Oddy test and material identification tests. | ADO | 16 | | | | | | |
| **AW2** | **180** | **Conservation workshop 2 - external** | | | | | **6** | | | | |
| AW2 | | Preventive conservation for heritage collections 1. Traineeship. | Collections conservation assessment. Handling, transportation, storage, packing | TJA | 4.5 weeks | | | | | | |
| **AW4** | **180** | **Conservation workshop 4 - external** | | | | | **6** | | | | |
| AW4 | | Preventive conservation for heritage collections 2. Traineeship. | Collections conservation assessment. Handling, transportation, storage, packing | TJA | 4.5 weeks | | | | | | |

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| | | | | | | ECTS pro Semester | | | | | |
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| | | | | | | 180 | | | | | |
| | | | | | | 24 | 36 | 24 | 36 | 30 | 30 |
| **BC1** | **180** | **Conservation 3** | | | **86** | | | **6** | | | |
| BC1.1 | 0.6 | Managing the collection and its environment 1 | Compatibility of storage and exhibition materials | ADO | 12 | | | | | | |
| | | | Origin and sensitiveness (interactions) | NDU | 8 | | | | | | |
| | | | Photography | PMY | 16 | | | | | | |
| | | | Cultural values, authenticity and conservation principles | RBE | 12 | | | | | | |
| BC1.2 | 0.2 | Technology of artifacts 1 | Identification of traces of manufacturing and use | TSC | 4 | | | | | | |
| | | | Metal and alloys 1 - materials and technology | VBO | 8 | | | | | | |
| | | | Metal and alloys 2 - structure and degradation processes | VBO | 8 | | | | | | |
| | | | Architecture, stone, mortar, wall paintings 2 - Materials, technology and degradation processes | Guyot | 12 | | | | | | |
| BC1.3 | 0.2 | Introduction to degradation processes 1 | Polymers (artificial and synthetic materials) - Materials and degradation processes | Rouzet | 6 | | | | | | |
| **BH1** | **180** | **Humanities 3** | | | **62** | | | **6** | | | |
| BH1.1 | 0.4 | History of art and culture 3 | Renaissance, 17th to 18th Century | HDE | 24 | | | | | | |
| BH1.2 | 0.2 | Written documentation and methodology 2 | Terms and language of conservation (8h). Aims, documentation forms, permanence of information (6h). | GRA | 14 | | | | | | |
| BH1.3 | 0.4 | Interdisciplinary studies 3 | Heritage objects : the Ethnologist point of view | AGM | 8 | | | | | | |
| | | | Work of art and History : case studies | Celio | 8 | | | | | | |
| | | | Scientific and technological heritage in History | JBO | 8 | | | | | | |
| **BN1** | **180** | **Natural sciences 3** | | | **67** | | | **6** | | | |
| BN1.1 | 0.4 | Chemistry for conservation 1 | Organic chemistry; Organic Nomenclature | ADO | 24 | | | | | | |
| | | | Laboratory techniques: weighting and | ADO | 4 | | | | | | |
| BN1.2 | 0.3 | Basics in Biology 1 | The living : plant and animal cells, protozootes, | AME | 24 | | | | | | |
| BN1.3 | 0.2 | Introduction to instrumental analysis | Photo, UV, NIR, X-Ray, Radiography, IR- | Degrigny | 12 | | | | | | |
| BN1.4 | 0.1 | Health and safety 2 | Introduction to Basic Life Support and First aid (Reminder) | Seghaïria / Mayeur | 3 | | | | | | |
| **BW1** | **180** | **Conservation workshop 5** | | | **190** | | | **6** | | | |
| BW1.1 | 0.3 | Composites : dismantling 1 | Dismantling and reassembling methods | TSC | 64 | | | | | | |
| BW1.2 | 0.5 | Basics in wood and metal working | Basics in woodworking | Grall Burst | 40 | | | | | | |
| | | | Material working, wood working, metal working, mounting, boxes, packing, working with synthetic polymers | GRA | 56 | | | | | | |
| BW1.3 | 0.1 | Documentation | Collections management systems and documentation in CR (advanced) | Brodard | 14 | | | | | | |
| BW1.4 | 0.1 | Polymers: artificial and synthetic materials - identification and condition assessment | | Rouzet | 16 | | | | | | |

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| | | | | | | 180 | | | | | |
| | | | | | | 24 | 36 | 24 | 36 | 30 | 30 |
| **BC2** | **180** | **Conservation 4** | | | **79** | | | | 6 | | |
| BC2.1 | 0.2 | Visual documentation 3 | Computer : data processing, computer graphics and pictures | PMY | 12 | | | | | | |
| BC2.2 | 0.6 | Technology of artifacts 2 | Sculpture and painting - Materials, technology and degradation processes | ANG | 20 | | | | | | |
| | | | Paleoecology. Introduction to geology. | AME | 12 | | | | | | |
| | | | Paper, Photography - materials, technology and degradation processes | Dobrusskin | 8 | | | | | | |
| | | | Textiles 1 - materials and degradation processes | Vogt | 8 | | | | | | |
| | | | Textiles 2 - technology | Schorta | 4 | | | | | | |
| | | | Pigments and dyes | CDE | 3 | | | | | | |
| BC2.3 | 0.2 | Introduction to degradation processes 2 | Collection assesment : Storage plans and management, calcul of space and volume | TJA | 12 | | | | | | |
| **BH2** | **180** | **Humanities 4** | | | **72** | | | | 6 | | |
| BH2.1 | 0.4 | History of art and culture 4 | 17th to 18th Century, 19th Century | HDE | 14 | | | | | | |
| | | | 20th and 21st Centuries | Bodenmann | 10 | | | | | | |
| BH2.2 | 0.3 | Legal aspects, business and work managment in conservation | Business and work management in conservation ; Organisation and legal forms of a company; Taxes, financing, administration, contracts, accounting | Ludwig | 16 | | | | | | |
| | | | Legal aspects | Fischer | 8 | | | | | | |
| BH2.3 | 0.3 | Interdisciplinary studies 4 | Ethnographic objects in museums | AGM | 8 | | | | | | |
| | | | Work of art and History : case studies | Celio | 8 | | | | | | |
| | | | Scientific and technological Heritage in Museography | JBO | 8 | | | | | | |
| **BN2** | **180** | **Natural sciences 4** | | | **80** | | | | 6 | | |
| BN2.1 | 0.6 | Chemistry for conservation 2 | Atomic and molecular orbitals; Hybridization; | ADO | 36 | | | | | | |
| | | | Linseed oil polymerisation workshop & FTIR analysis | LBR | 8 | | | | | | |
| BN2.2 | 0.3 | Basics in Biology 2 | Interpretation of cultures, preparation and | AME | 12 | | | | | | |
| | | | Identification of micro-organisms | EJO | 12 | | | | | | |
| BN2.3 | 0.1 | Basic concepts of scientific analysis | An elementary approach to analytical | CDE | 12 | | | | | | |
| **BW3** | **180** | **Conservation workshop 7** | | | **210** | | | | 6 | | |
| BW3.1 | 0.4 | Metal and wood working applied to objects mounting. | Introduction to wood-turning. Coloring and painting. Conception of objects mounting and application. | TSC | 82 | | | | | | |
| BW3.2 | 0.3 | Packing 2 : Conservation systems for transport | Packing for storage and transport. Introduction to shock tests. | Boulangé | 60 | | | | | | |
| BW3.3 | 0.2 | Collections conservation survey and monitoring 3 | Collection assesment. Storage plans and management. Showcases conception project | TJA | 36 | | | | | | |
| BW3.4 | 0.1 | Colour and retouching | Colour and retouching | PMY | 32 | | | | | | |
| **BW2** | **180** | **Conservation workshop 6 - external** | | | | | | | 6 | | |
| BW2 | | Preventive conservation for heritage collections 3. Traineeship. | Climate control, storage and display conditions, packing and transportation. Survey, assessment and management. Evaluation of storage and display conditions. | VBO | 4.5 weeks | | | | | | |
| **BW4** | **180** | **Conservation workshop 8 - external** | | | | | | | 6 | | |
| BW4 | | Preventive conservation for heritage collections 4. Traineeship. | Climate control, storage and display conditions, packing and transportation. Survey, assessment and management. Evaluation of storage and display conditions. | VBO/TJA | 4.5 weeks | | | | | | |

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| **CC1** | **180** | **Conservation 5** | | | **104** | | | | | **6** | |
| CC1.1 | 0.2 | Advanced studies in technology, degradation and conservation of cultural heritage objects - metal and alloys | Archaeological and historic metals | VBO | 14 | | | | | | |
| | | | Modern metal alloys | TSC | 8 | | | | | | |
| CC1.2 | 0.2 | Advanced studies in technology, degradation and conservation of cultural heritage objects - ceramic and glass | Ceramic, glass | KVA | 16 | | | | | | |
| CC1.3 | 0.1 | Advanced studies in technology, degradation and conservation of cultural heritage objects - organic materials | Organic materials | Goron | 14 | | | | | | |
| CC1.4 | 0.1 | Advanced course in physics | Applied physics to conservation 3 | LBR | 12 | | | | | | |
| CC1.5 | 0.4 | Managing collections and their environment 4 | Risk analysis | TJA | 8 | | | | | | |
| | | | | von Lerber | 16 | | | | | | |
| | | | | Sauvagnargues | 16 | | | | | | |
| **CH1** | **180** | **Humanities 5** | | | **76** | | | | | **6** | |
| CH1.1 | 0.3 | Interdisciplinary studies 5 | Archaeological artefacts | AGM | 8 | | | | | | |
| | | | Scientific and technological objects in museums 2 | JBO | 8 | | | | | | |
| | | | History of Art: Case Studies | Celio | 8 | | | | | | |
| CH1.2-AE | 0.3 | Archaeology | Archaeological artefacts | AGM | 16 | | | | | | |
| | | | | AGM Chauvière | 4 | | | | | | |
| CH1.3-STH | 0.4 | Scientific revolution and experimental science | History of sciences and techniques | JBO | 32 | | | | | | |
| **CW1** | **180** | **Conservation workshop 9** | | | **78** | | | | | **6** | |
| CW1.1 | 0.8 | Glasses | Glasses | KVA | 64 | | | | | | |
| CW1.2 | 0.2 | Security and safety, risk assessment | Security and safety : management, control, equipment | TJA | 14 | | | | | | |
| **CW2** | **180** | **Conservation workshop 10** | | | **128** | | | | | **6** | |
| CW2 | | Metal and alloys | Metal and alloys | VBO | 92 | | | | | | |
| | | | Heat treatments of steel. Introduction to mechanical cleaning. | TSC | 36 | | | | | | |
| **CW4** | **180** | **Conservation workshop 12** | | | **120** | | | | | **6** | |
| CW4 | | Approach of technical objects | Project management on technical objects conservation. Team working. Dismantling and cleaning treatments. | TSC/CBT | 120 | | | | | | |
| **CW3** | **180** | **Conservation workshop 11** | | | | | | | | | **6** |
| CW3 | | Basics in cleaning of organic materials | Basics in cleaning of organic materials | à définir | 112 | | | | | | |
| **CW5** | **180** | **Conservation workshop 13** | | | | | | | | | **6** |
| CW5 | | Disaster response | | NDU, Kissel, von Lerber, TJA, TSC... | 128 | | | | | | |
| **CW6** | **180** | **Bachelor thesis preparation** | | | | | | | | | **6** |
| CW6 | | Bachelor thesis preparation | | RBE, TJA, TSC, VBO | 128 | | | | | | |
| **CC2** | **360** | **Bachelor thesis** | | | | | | | | | **12** |
| CC2 | | Bachelor thesis | | RBE, TJA, TSC, VBO | 9 weeks | | | | | | |

[1]SWH = Student Workin Hours, coef. = ponderation of the unit

[2]1 course hour = 60 minutes