Sélection d'articles en didactique de la chimie

Liens rapides :

- **http://pubs.acs.org/toc/jceda8/current : numéro courant de Journal of Chemical Education** où vous avez la possibilité de consulter les résumés. Si vous souhaitez recevoir la table des matières à chaque nouveau numéro, il vous suffit de prendre l'option “register” (https://account.acs.org/ssoamweb/account/signUp), et ensuite de demander les “E-Mail Alerts” pour les journaux choisis. Pour les étudiants et le personnel UMONS, vous pouvez accéder aux textes complets sur le réseau de l'UMONS ou en activant le VPN, ou via le bureau à distance.
    - Fil RSS des derniers articles parus dans Journal of Chemical Education
- **Chemistry Education Research and Practice : journal de la Royal Society of Chemistry**, accessible sur inscription. Vous pouvez obtenir des alertes via la page http://www.rsc.org/Publishing/Journals/forms/V5profile.asp, ainsi que pour Education in chemistry.
    - Fil RSS des derniers articles parus dans Chemistry Education Research and Practice
- The Chemical Educator - table of contents
- Publications intéressantes (résumés) (sélections d'articles discutés lors de séminaires internes, sur ce wiki)
- Publications intéressantes de chimie-physique, pour travaux personnels d'étudiants,…

Dans les listes qui suivent, certains articles concernent l'enseignement supérieur et présentent donc un intérêt relatif par rapport au secondaire.

Articles de Journal of Chemical Education

ASAP and/or ACS Editors Choice articles

- …

Virtual Issues

- Journal of Chemical Education - Resources for Teaching Your Chemistry Class Online: A Free to Read Collection from the American Chemical Society & the ACS Division of Chemical Education
- Laboratory Learning

Cf. aussi le lien virtual collections.

2020

- Octobre - Journal of Chemical Education - Vol 97, No 10
  - Commentary on the Models of Electronegativity
  - Teachers' Noticing, Interpreting, and Acting on Students' Chemical Ideas in Written Work
  - Review to Analyze and Compare Virtual Chemistry Laboratories for Their Use in Education
  - Are Heating and Stirring Required to Dissolve Salt in Water? Answers from Quantitative Experimental Evidence
  - Creation of a Phenol/Water Phase Diagram Using a Low-Cost Automated System and Remote Transmission
  - A Hybrid Board Game to Engage Students in Reviewing Organic Acids and Bases Concepts
  - Determining the Energy of Activation of a Salt, Water, and Alcohol Emulsion
- Septembre - Journal of Chemical Education - Vol 97, No 9
  - Introduction to the Journal of Chemical Education Special Issue on Insights Gained While Teaching Chemistry in the Time of COVID-19
  - Remote Interview Methods in Chemical Education Research
  - Attempts, Successes, and Failures of Distance Learning in the Time of COVID-19
  - Modeling Meaningful Chemistry Teacher Education Online: Reflections from Chemistry Preservice Teacher Educators in Australia
  - Experience-Based Learning Approach to Chemical Kinetics: Learning from the COVID-19 Pandemic
  - Reflections on Three Different High School Chemistry Lab Formats during COVID-19 Remote Learning
  - Using Hands-On Chemistry Experiments While Teaching Online
  - Building an Interactive Immersive Virtual Reality Crime Scene for Future Chemists to Learn Forensic Science Chemistry
  - Development and Use of Kitchen Chemistry Home Practical Activities during Unanticipated Campus Closures
  - Determination of a Kinetic Law of Phosphorescence Decay Using a Conventional Photo Camera and Free Image Processing Software
  - Use of 3D Printing to Manufacture Document Camera Mounts in Support of Online Education Shifts during the COVID-19 Pandemic
  - Benefits of Simulations as Remote Exercises During the COVID-19 Pandemic: An Enzyme Kinetics Case Study
  - Re-flipping in the Remote Classroom: The Surprising Uptake of Video-Recorded Worked Examples
  - Escape the (Remote) Classroom: An Online Escape Room for Remote Learning
  - Physical and Digital Educational Escape Room for Teaching Chemical Bonding] * [[https://pubs.acs.org/doi/10.1021/acs.jchemed.0c00739|A Course of History of Chemistry and Chemical Education Completely Delivered in Distance Education Mode during Epidemic COVID-19
  - Online Data Generation in Quantitative Analysis: Excel Spreadsheets and an Online HPLC Simulator Using a Jupyter Notebook on the Chem Compute Web site
  - At-Home Colorimetric and Absorbance-Based Analyses: An Opportunity for Inquiry-Based, Laboratory-Style Learning
  - A Community Springs to Action to Enable Virtual Laboratory Instruction
  - Plans vs Reality: Reflections on Chemical Crystallography Online Teaching During COVID-19
  - Chemistry in the Kitchen Laboratories at Home

  - Developing Engaging Remote Laboratory Activities for a Nonmajors Chemistry Course During COVID-19
  - Setting Up an Educational Column Chromatography Experiment from Home
  - Choose Your Own “Labventure”: A Click-Through Story Approach to Online Laboratories during a Global Pandemic
  - Stay at Home Laboratories for Chemistry Courses
  - When the Kitchen Turns into a Physical Chemistry Lab
  - The Sudden Switch to Online Teaching of an Upper-Level Experimental Physical Chemistry Course: Challenges and Solutions
  - Using Student Insights for Ideas on Video Creation for Chemistry Classes
  - Insights Gained During COVID-19: Refocusing Laboratory Assessments Online
  - Assessing Student Learning in a Rapidly Changing Environment: Laboratories and Exams
  - Designing a Hybrid Biopharmaceutical Laboratory Course to Enhance Content Flexibility and Access
  - Remote Teaching and Learning in a Pandemic: Reflections from Chemistry Instructors at a Pharmacy School in Jordan
  - Implications for the Use of PowerPoint, Classroom Response Systems, Teams, and Whiteboard to Enhance Online Teaching of Chemistry Subjects in Community College
  - Remote Teaching of General Chemistry for Nonscience Majors during COVID-19
  - Asynchronous Online Assessment of Physical Chemistry Concepts in the Time of COVID-19
  - Using Familiar and New Assessment Tools in Physical Chemistry Courses During COVID-19
  - An Applied Research-Based Approach to Support Chemistry Teachers during the COVID-19 Pandemic
  - Online Experimentation during COVID-19 Secondary School Closures: Teaching Methods and Student Perceptions
  - Gamification of ChemDraw during the COVID-19 Pandemic: Investigating How a Serious, Educational-Game Tournament (Molecule Madness) Impacts Student Wellness and Organic Chemistry Skills while Distance Learning
  - Going Remote: How Teaching During a Crisis is Unique to Other Distance Learning Experiences
  - Challenges in General Chemistry: The Effect of Moving Online in the Middle of the Semester
  - Minimize Online Cheating for Online Assessments During COVID-19 Pandemic
  - Strategies for Effective Assessments while Ensuring Academic Integrity in General Chemistry Courses during COVID-19
  - Revisiting Distance Learning Resources for Undergraduate Research and Lab Activities during COVID-19 Pandemic
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  - A Review of Biochemistry Education Research
  - Factors Influencing Student Learning in Semi-Flipped General Chemistry Courses
  - Short Course on Sustainable Polymers for High School Students
  - Demonstrating Basic Properties and Application of Polarimetry Using a Self-Constructed Polarimeter
  - Go Fischer: An Introductory Organic Chemistry Card Game
  - Rapid Formation of Copper Patinas: A Simple Chemical Demonstration of Why the Statue of Liberty Is Green
  - Construction of a Room-Temperature Eutectic Binary Phase Diagram by Use of Differential Scanning Calorimetry
  - Organic Fanatic: A Quiz-Based Mobile Application Game to Support Learning the Structure and Reactivity of Organic Compounds
  - CHIMACTIV: An Open-Access Website for Student-Centered Learning in Analytical

Chemistry
    - Practical Decomposition of Irreducible Representations: Applications to Molecular Vibrations and Molecular Orbitals
    - SeparateDuino: Design and Fabrication of a Low-Cost Arduino-Based Microcentrifuge Using the Recycled Parts of a Computer DVD Drive
    - Clickers versus Plickers: Comparing Two Audience Response Systems in a Smartphone-Free Teaching Environment
    - Preliminary Evidence on the Effect of an Open-Source Textbook in Second-Year Undergraduate Analytical Chemistry Courses
    - Matching Five White Solids to Common Chemicals: A Dissolution Calorimetry and Acid–Base Titration Experiment
    - Modified Method for Extraction of Photosynthetic Plant Pigments for Microcolumn Chromatography
- juillet
    - A Walk in the Clouds: Cautionary Tales from a Century of Chemical Agent Work
    - Ricin and Saxitoxin: Two Natural Products That Became Chemical Weapons
    - Security of Chemical Laboratories in Schools and Universities in Slovakia
    - A Proposed Integrated Framework for Chemical Safety and Chemical Security
    - Experimenting with At-Home General Chemistry Laboratories During the COVID-19 Pandemic
    - Chemistry and Mathematics of the Belousov–Zhabotinsky Reaction in a School Laboratory
    - Illustrating the Concepts of Entropy, Free Energy, and Thermodynamic Equilibrium with a Lattice Model
    - Establishing a Connection for Students between the Reacting System and the Particle Model with Games and Stochastic Simulations of the Arrhenius Equation
    - Mock Urinalysis Demonstration: Making Connections among Acid–Base Chemistry, Redox Reactions, and Healthcare in an Undergraduate Nursing Course
    - Fabricating a Low-Cost, Simple, Screen Printed Paper Towel-Based Experimental Device to Demonstrate the Factors Affecting Chemical Equilibrium and Chemical Equilibrium Constant, Kc
    - Interactive Unit Cell Visualization Tool for Crystal Lattice Structures
- juin
    - Establishing the Laboratory as the Place to Learn How to Do Chemistry
    - Johnstone's Triangle as a Pedagogical Framework for Flipped-Class Instructional Videos in Introductory Chemistry
    - Introduction to Medicinal Chemistry: A Five-Day Course for High School Students
    - Comprehensive Training of Undergraduates Majoring in Chemical Education by Designing and Implementing a Simple Thread-Based Microfluidic Experiment
    - Simulating the Effects of Excluded-Volume Interactions in Polymer Solutions
    - Sizzle and Fizzle of Bath Bombs: An Inexpensive and Accessible Kinetics Experiment
    - Teaching Principal Component Analysis Using a Free and Open Source Software Program and Exercises Applying PCA to Real-World Examples
    - An Arduino-Based Talking Calorimeter for Inclusive Lab Activities
    - A Closer Examination of the Mechanism of the Hydrogen Peroxide Iodine-Clock Reaction with Respect to the Role of Hypoiodite Species
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    - Property Information in Substance Records in Major Web-Based Chemical Information and Data Retrieval Tools: Understanding Content, Search Opportunities, and Application to Teaching
    - Using Augmented Reality to Stimulate Students and Diffuse Escape Game Activities to Larger Audiences
    - Playing a Board Game to Learn Bioenergy and Biofuels Topics in an Interactive, Engaging Context
    - Relating ΔHvap of Organic Liquids to Intermolecular Forces: Simple Modifications of a Classic General Chemistry Experiment
    - Visualizing 3D Molecular Structures Using an Augmented Reality App
    - Monte Carlo Uncertainty Propagation with the NIST Uncertainty Machine
- avril
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    - Didaktik Models in Chemistry Education
    - Probing the Mechanism of Bubble Nucleation in and the Effect of Atmospheric Pressure on the Candy–Cola Soda Geyser
    - Designing and Using an Atomic Model Kit with H, C, N, and O Model Atoms Having a Mass Ratio of 1:12:14:16 to Teach the Concept of Mole and Associated Stoichiometric Relationships
    - Interactive 3D Visualization of Chemical Structure Diagrams Embedded in Text to Aid Spatial Learning Process of Students
    - Platonic Solids and Their Programming: A Geometrical Approach
    - Constructing, Troubleshooting, and Using Absorption Colorimeters to Integrate Chemistry and Engineering
    - Curve Fitting, Linear Algebra, and Solver in an Analytical Chemistry Course: A Facile and Safe Activity Suitable for the Classroom Setting
    - Elephant's Toothpaste Used as a Qualitative Demonstration of Rate versus Temperature
    - Phosphate in Soils: An Undergraduate Exploration of Soil Texture, Chemistry, and Amendment
    - Lab Cooked MOF for CO2 Capture: A Sustainable Solution to Waste Management
    - Low-Cost 3D-Printed Polarimeter
    - Data Functionalization for Gas Chromatography in Python
    - Leavening Agents: The Chemistry of Baking Discovered with a Computer-Based Learning
    - Changes of CO2 Concentration and Heat Illustrate Why the Flame Is Extinguished in the Candle-and-Cylinder Experiment
    - The Blue Bottle Experiment Revisited: How Much Oxygen?
    - Comment on "Should Organic Chemistry Be Taught as Science?"
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    - Impact of Representations in Assessments on Student Performance and Equity
    - Restructuring a General College Chemistry Sequence Using the ACS Anchoring Concepts Content Map
    - Innovative Food Laboratory for a Chemistry of Food and Cooking Course
    - Team-Based Learning for Scientific Computing and Automated Experimentation: Visualization of Colored Reactions
    - Using Image Recognition and Processing Technology to Measure the Gas Volume in a Miniature Water Electrolysis Device Constructed with Simple Materials
    - Invisibility Cloaks and Hot Reactions: Applying Infrared Thermography in the Chemistry Education Laboratory

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    - That's So Cool. Using a Flame to Freeze Water. The Vapor-Absorption Refrigerator and How It Works
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    - Using Elementary Calculus and Dimensional Analysis to Prepare Students for Physical Chemistry
    - Reactions: An Innovative and Fun Hybrid Game to Engage the Students Reviewing Organic Reactions in the Classroom
    - Rolling the Dice: Modeling First- and Second-Order Reactions via Collision Theory Simulations in an Undergraduate Laboratory
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- Editorials
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- Editorials
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- JCE Classroom Activities Virtual Issue: Celebrating 15 Years with the 15 Greatest Hits, 1997–2012, Erica K. Jacobsen
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- 104 A Novel, Simplified Scheme for Plastics Identification, M. E. Harris, B. Walker
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- 73 Colors in Liquid Crystals, G. Lisensky, E. Boatman
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- 93 Aluminum—Air Battery, M. Tamez, J. H. Yu
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L'article Influencing the practice of chemistry education Chem. Educ. Res. Pract., 2019, DOI: 10.1039/C9RP90006C (Editorial) de Michael K. Seery propose de nombreux liens d'articles importants en CER (chemical education research) :

Sujet	Citation
Clickers in the classroom	MacArthur and Jones (2008)
Teaching chemical equilibrium	Raviolo and Garritz (2009)
Green chemistry	Andraos and Dicks (2012)
Use of dataloggers	Tortosa (2012)
Transfer of learning	Dori and Sasson (2013)
Chemical triplet (Johnstone's triangle)	Taber (2013)
Learning progressions	Sevian and Talanquer (2014)
Teaching thermodynamics	Bain et al. (2014)
Solutions/electrolytes	de Berg (2014)
Hydrogen bonding	Weinhold and Klein (2014)

Sujet	Citation
Education for sustainable development	Burmeister et al. (2012) Juntunen and Aksela (2014)
Quantum chemistry	Greca and Freire (2014)
Graphical representations of orbitals	Barradas-Solas and Sánchez Gómez (2014) Clauss et al. (2014)
Chemical bonding	Dhindsa and Treagust (2014)
Implicit knowledge	Taber (2014)
Distinguishing abstraction and complexity	Blackie (2014)
Organic chemistry	Graulich (2015)
Capturing student reasoning	Sevian et al. (2015)
Flipped learning	Seery (2015)
Chemical kinetics	Bain and Towns (2016)
Learning difficulties leading to misconceptions	Tümay (2016)
Symbolic expressions in chemistry	Liu and Taber (2016)
Pre-laboratory activities	Agustian and Seery (2017)
Reasoning about structure–property relationships	Talanquer (2018)

La revue propose aussi un accès thématique :

- Learning progressions and teaching sequences in chemistry education, 2018
- Celebrating our 2018 prize and award winners, 2018
- Development of key skills and attributes in chemistry, 2017
- The language and the teaching and learning of chemistry, 2016
- Celebrating the 2016 RSC Prize and Award Winners, 2016
- Teaching And Learning About The Interface Between Chemistry And Biology, 2015
- Physical Chemistry Education, 2014
- The Application of Technology to Enhance Chemistry Education, 2013
- Sustainable Development and Green Chemistry in Chemistry Education, 2012
- Diagnostic Assessment in Chemistry, 2011
- Evidentially-Based Curriculum Development, 2010
- Chemistry Teacher Education – Recent Developments, 2009
- Research and Practice in Chemical Education in Advanced Courses, 2008
- The Laboratory in Science Education: The State of the Art, 2007
- Chemical Education Research in Glasgow in Perspective, 2006
- Chemistry and Environmental Education, 2004
- Teaching Chemistry and Physics, 2003
- Structural Concepts, Part II, 2002
- Structural Concepts: Contributions from Science, Science Education, History and Philosophy of Science, 2001

2020

- Volume 21, 01 October 2020, Issue 4, Page 1015 to 1221
    - Pre-service chemistry teachers' pedagogical content knowledge for integrated STEM development with LESMeR model - Chemistry Education Research and Practice (RSC Publishing)
    - Linking the submicroscopic and symbolic level in physical chemistry: how voluntary simulation-based learning activities foster first-year university students' conceptual

understanding - Chemistry Education Research and Practice (RSC Publishing)
    - Examining the effect of lab instructions on students' critical thinking during a chemical inquiry practical - Chemistry Education Research and Practice (RSC Publishing)
- Volume 21, 01 July 2020, Issue 3, Page 687 to 1013
    - Electrolysis: What textbooks don't tell us - Chemistry Education Research and Practice (RSC Publishing)
    - Pre-university students' perceptions about the life cycle of bioplastics and fossil-based plastics - Chemistry Education Research and Practice (RSC Publishing)
    - Capturing student conceptions of thermodynamics and kinetics using writing - Chemistry Education Research and Practice (RSC Publishing)
    - Video-based instruction on safety rules in the chemistry laboratory: its effect on student achievement - Chemistry Education Research and Practice (RSC Publishing)
    - The impact of coupling assessments on conceptual understanding and connection-making in chemical equilibrium and acid–base chemistry - Chemistry Education Research and Practice (RSC Publishing)
- Volume 21, 01 April 2020, Issue 2, Page 483 to 685
    - Student-generated video in chemistry education - Chemistry Education Research and Practice (RSC Publishing)
    - Increasing chemistry students' knowledge, confidence, and conceptual understanding of pH using a collaborative computer pH simulation - Chemistry Education Research and Practice (RSC Publishing)
    - Development of a measurement instrument to assess students' proficiency levels regarding galvanic cells - Chemistry Education Research and Practice (RSC Publishing)
- Volume 21, Issue 1 page 1 to 482
    - Revisiting the use of concept maps in a large enrollment general chemistry course: implementation and assessment
    - Impact of basic arithmetic skills on success in first-semester general chemistry
    - An examination of pre-service chemistry teachers' meaningful understanding and learning difficulties about aromatic compounds using a systemic assessment questions diagram
    - Developing a lesson plan on conventional and green pesticides in chemistry education – a project of participatory action research
    - Epistemological problems underlying pre-service chemistry teachers' aims to use practical work in school science
    - Secondary school students' chemistry self-concepts: gender and culture, and the impact of chemistry self-concept on learning behaviour
    - Secondary school students' acquisition of science capital in the field of chemistry
    - A teacher perspective on Scrum methodology in secondary chemistry education
    - How to promote chemical literacy? On-line question posing and communicating with scientists
    - Students' competence in translating between different types of chemical representations

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