

Teaching and learning skills for technicians

Online
£745
This course will provide the tools needed to contribute effectively to the student experience and has been designed to cover key topics, linking theories of teaching and learning together with workplace experiences, providing a more holistic approach to learning.

HEaTED

Project planning essentials for technicians

Online
£335
This course aims to introduce the principles of project planning from initiation through to building a project schedule and provide an opportunity to apply them to a group project.
HEaTED

Qualified Person analysis and testing

Online
£2085 + VAT
This module reviews the principal qualitative and quantitative analytical methods in common use, the principles of method selection and validation and importantly, it includes the interpretation of analytical data including non conforming results and how these need to be managed.
Reading Scientific Services

Qualified Person mathematics and statistics

Online
£2085 + VAT
This course concentrates on the interpretation and understanding of results and the descriptive statistics used in everyday data analysis of the Pharmaceutical Quality System.
Reading Scientific Services

Genotoxic impurities - identification and control

Online
On request
This four week course will provide the latest updates on regulatory expectations, clarifying any grey areas to outline your responsibilities as the manufacturer. It will also advise on crucial aspects of risk assessments and safety testing.
PTI

Fundamentals of gas chromatography

Online
£245 + VAT
This course will detail the aspects that are required to fully understand GC and will focus on the theory of GC and the mechanisms that result in chromatographic separation.
CHROMacademy

Comprehensive GC software: Agilent OpenLAB CDS

Online 18-21 January
£750 + VAT
Through presentations and practical exercises, this course covers how to use the software; from creating methods and sequences to analyse samples, to how to undertake qualitative and quantitative data analysis.
Anthias Consulting

Absolute basics of HPLC and LC-MS

Online 26 January
£250 + VAT
An introduction for complete beginners providing an overview of the instruments used and how they work, the types of samples which can be analysed and different applications of the techniques.
Anthias Consulting



ANALYTICAL CHEMISTRY TRUST FUND

Analytical Chemistry Summer Studentships

Application deadline
12th February 2021



The Object of the Analytical Chemistry Trust Fund is to promote, assist and extend the science and study of Analytical Chemistry and of all questions relating to the analysis, nature and composition of natural and manufactured materials for the benefit of the public.

The purpose of the awards is to give experience of research to undergraduates with research potential and to encourage them to consider a career in Analytical Chemistry research on completion of their undergraduate degree. The awards provide support for the student at a rate of £270 per week (£320 per week in London), for a period of between 6 and 8 weeks during the 2020 summer vacation.

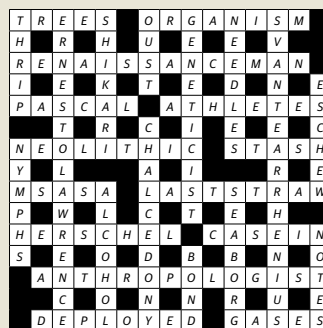
Further information can be found at www.rsc.org/Membership/Networking/InterestGroups/Analytical/actf-summer-studentships.asp

All enquiries and correspondence should be addressed to Dr Ruth Hearn, ruth@rhearn.net
Office: +44 (0)1276 489982

Registered Charity Number 268893

November 2020 solutions and winners

Cryptic crossword



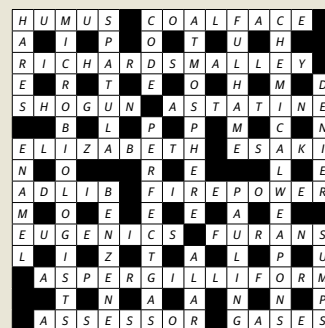
Wordoku

The Cambridge-based neuroscientist was George MALLIARAS

Science scramble

1. She
2. Hens
3. Hinges
4. Whinges
5. Werner Heisenberg

Quick crossword



November winners

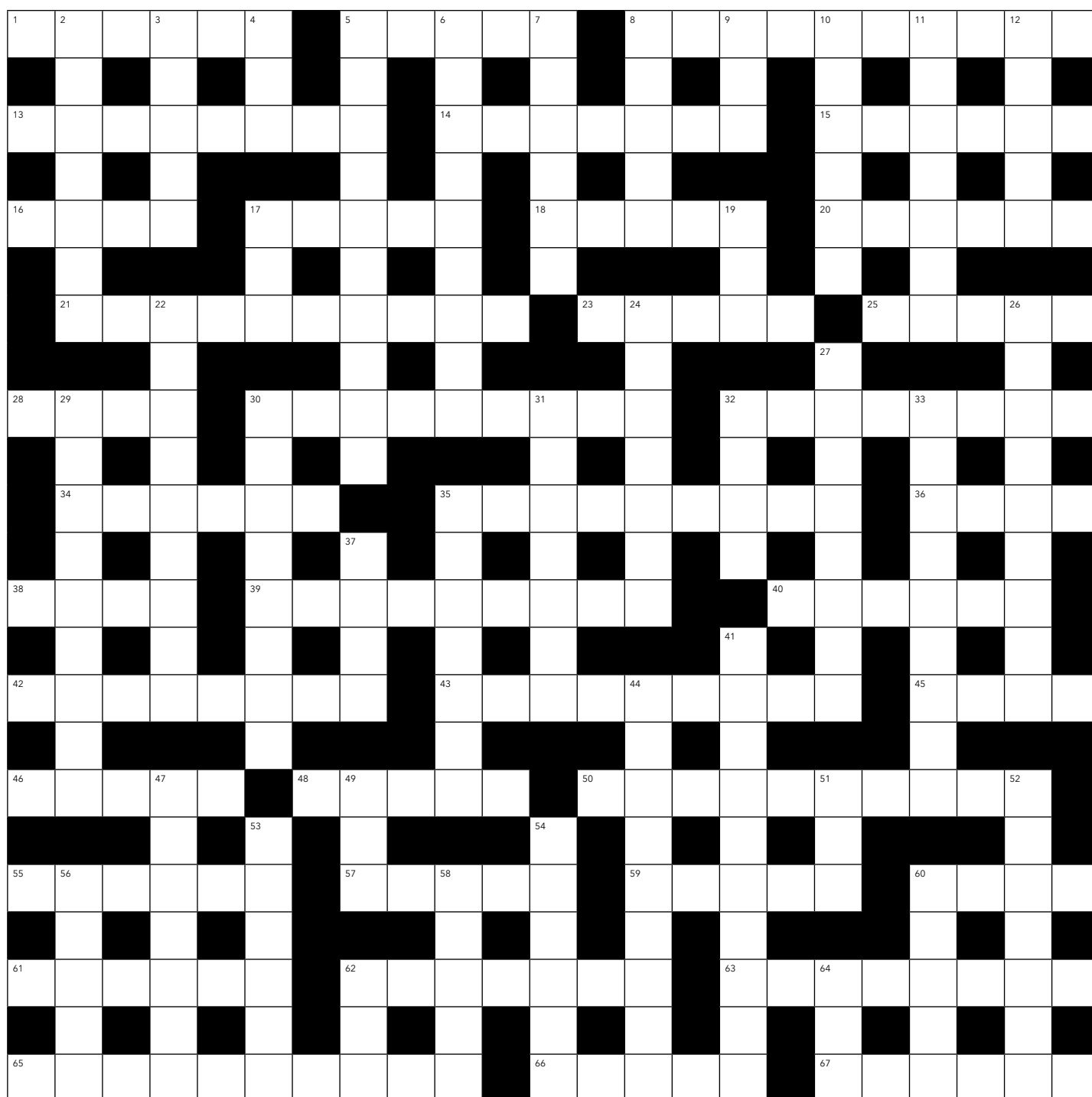
Wordoku
Bernard Costello
Dorking, UK

Science scramble
Ben Clough
Penzance, UK

Cryptic crossword
Jason Thwaites
Frome, UK

Quick crossword
William King
Dunshaughlin, Ireland

December 2020 Jumbo CrOsSWORD



Entry form

This month there are only two prize puzzles: the cryptic elements crossword and the quick regular crossword. For each crossword, a winner will be selected from all the correct entries received. Each winner will receive a hamper just in time for Christmas.

You can enter both of the prize draws, but each entrant is only eligible to win one puzzle prize.

Please enter your details below and email a scan or photograph of this page with your completed entries to us by **14 December 2020**. The winners of this month's puzzles will be published in the January 2021 issue, along with the solutions.

Email: chemistryworld@rsc.org

Name

Address

.....

Participants are advised that any personal information supplied will be processed in connection with this competition and only in accordance with our privacy statement (www.chemistryworld.com/privacy).

Prize entry 1: Cryptic elements crossword

Each crossword square can have one or two letters, which must be letters of an elemental symbol, or the letters D or T (for deuterium or tritium). For example, Dalton could be written D(A)TON.

Across

- No man leaves Moroccan scion to generate hot air (8)
- Gags inside secret chest (7)
- Rabbi on phone about oddly ignored gent's medication (14)
- Clouds recycled oil at start (10)
- So smashing cairns leads to stupor? (8)
- Somehow catch rare personality (9)
- Mood surrounding top national biochemist (5)
- I can't turn it into epic? (7)
- Approves of such arachnids? (5)
- Confused, I sit on extremely blue rocks (8)
- Central unit abandons science concerns over tooth conditions (13)
- Can't rates change for these reagents? (9)
- Some waiter ate something that repeats (8)
- Together but wildly untied (6)
- I noticed **38 Across** turn into insecticide (13)
- Ordered crisps then got muscles? (10)
- Guvnor hosts Serbs regularly treated (3, 4)
- Curiosity about weirdest nook (6, 2, 4)
- Without a final plaster, flipping sprain pinches (4)
- Around noon I can make you weep (5)
- Poisons here transforming the upper regions (11)
- In favour of exams but complains anyway! (8)
- Sugars a wildly scarce dish (11)
- Becks upsets star act and reflects (12)
- Position hidden in scenic headland (5)
- Fool! I do it differently! (5)
- Oral dose seldom containing **42 Across**? (7)
- Appeal to Ivy's plot about U2? (12)
- I'm nuts about a big wave (7)
- Radiochemist turns Daddy soft (but not daft!) (5)
- Charlie ordered saucy plants (6)
- Names spectacles by the sound of it (5)
- Checked out a portion of peri-peri she desired (8)
- It's Veronica upsetting the creepy crawlies (11)
- Pigment coated iron after treatment (10)
- Luddites chop the broken bones (12)
- Missus hid a little rice dish (5)
- Most passionate during shot testing (7)

Down

- A little chromium action may be rocky! (8)
- Stored energy transformed magnetic strength unit (7)
- A bit of corncob rattling snake (5)
- Freedom fighters on Her Majesty's service primarily? (10, 5)
- State right away, concert tunic needing repair (11)
- Philosopher to caress perhaps? (8)
- Without its extremes, slapstick surprisingly supple (7)
- Harasses the horses? (4)
- Odd thing leaving butchering to become biochemist (7)
- Adapted to Caribbean compound (11)
- Beginning to prepare suet (6)
- To begin with, the reason is not here (5)
- Oddly spurn local star (3)
- Slug found in brunch regular maid prepared (10)
- Acerbities aid cities abroad (9)
- Chemist converts portal into polymer (13)
- Boasts how all at sea these vessels are? (9)
- Vitamin in acidic tonic strangely (9, 4)
- I see insects producing no alternatives (11)
- Chinook scatters very first nerve agent (8)
- Drops the bags (5)
- Well-informed people cooing about scent (11)
- Nuts about bids for trash cans (8)
- Detects some chosen sessions (6)
- Top soccer city endlessly needing treatment for bugs (12)
- New carboy trashed for food (13)
- Element synthesised by sages around noon? (9)
- Pets drongos oddly! (4)
- Sore about bauxite and pyrite? (4)
- Youngsters at first sit better around such minerals (10)
- Fired plasma not even transforming gas (8)
- Fry loves fancy bridges (8)
- Cites first rule revised relating to the spatial arrangement of atoms (6)
- Avoids the waterfowl (5)
- French physicist lacking motorised vehicle but having cycle? (6)
- Reinforced with hidden message (4)
- Not entirely loathe to pledge (4)

Prize entry 2: Quick crossword

This one is your regular type of crossword, no element symbols are needed.

Across

- BH₃ (6)
- Ambition (5)
- Nuclear physicist who worked on the Manhattan Project and also worked with Lise Meitner on fission (4, 6)
- Rocks (8)
- Commissioned rank (7)
- 57 Across** Author of *The Sceptical Chymist* (6, 5)
- Circle (4)
- 17, 18 Across** Polish-French scientist portrayed by Rosamund Pike in the 2020 film *Radioactive* (5, 5)
- See **17 Across**
- Inspired (6)
- Random, like the Monte Carlo process (10)
- Large body of water (5)
- 25, 62 Down** State of matter that obeys PV = nRT (5, 3)
- Tunnel (4)
- Sensor for measuring a magnetic property (9)
- Old forms of computer data storage (8)
- Brimstone (6)
- Fluorescent dye (9)
- Abominable snowman (4)
- Hurt (4)
- One part of a redox reaction (9)
- 40, 56 Down** Italian-American scientist after whom a synthetic element is named (6, 5)
- Measure of electromagnetic flux emitted, transmitted, reflected or received by a surface (8)
- Fossilised molluscs, often found on England's Jurassic Coast (9)
- Goat (4)
- Having a relatively high Young's Modulus (5)
- Opposite of cathode (5)
- Corresponded (10)
- Insult (6)
- See **15 Across**
- Pleasure boat (5)
- Dandies (4)
- Trajectories (6)
- Italian physicist and physician who is eponymised in a word meaning to shock into action (7)
- Idiot (8)
- Production of new living organisms (10)
- Ram-horned Egyptian deity who gives his name to **43 Across** (5)
- Scientific journal first published in 1869 (6)

Down

- Beginnings (7)
- See **35 Down**
- Subdivision of geologic time (3)
- Rare-earth element discovered in 1886 by a French chemist who also discovered gallium and samarium (10)
- Existence of molecules with the same formulae but different structures (9)
- See **52 Down**
- Academy award (5)
- Black viscous liquid obtained from wood, coal, petroleum or peat (3)
- Containing Fe³⁺ (6)
- Drank (7)
- Arc (5)
- Unit of speed (abbrev.) (3)
- ___-aluminium, one of the elements that Mendeleev predicted from gaps in his periodic table (subsequently discovered and named gallium) (3)
- German pharmacologist jointly awarded a Nobel prize in physiology or medicine for work on the neurotransmitter acetylcholine (4, 5)
- Sure (7)
- Constant boiling point mixture (9)
- Opiates (8)
- Drying agent (9)
- Halogen (8)
- Element named after the Norse god of thunder (7)
- Fencing weapon (4)
- Profession of **40 Across** (9)
- 35, 3 Down** German chemist and pioneer of valence theory who died in a gas balloon accident (7, 5)
- Border (4)
- Magnetism (10)
- Lanthanide discovered in 1885 by Austrian chemist Carl Auer von Welsbach (9)
- Discoverer of the world's first antibiotic (7)
- Part of a pen (3)
- Ignited (3)
- 52, 7 Down** Change in frequency of a wave relative to an observer moving to/from the source (7, 6)
- Inventor with over 1000 US patents to his name (6)
- US State (6)
- See **40 Across**
- Parts of eggs containing xanthophyll (5)
- Polished plane surface of a cut gem (5)
- See **25 Across**
- Forbidden (3)

November 2020 solutions and winners

Solutions to last month's puzzles and November's winners can be found on page 62.