



**INNKALLING MØTE I PROGRAMUTVALG FOR FORSKERUTDANNING**

**Onsdag 13.10.21, kl. 14.00-15.30**

**Sted: Rom 437, Armauer Hansens Hus, 4. etg.**

<b>Sak 37/21</b>	<b>Godkjenning av innkalling og saksliste</b>
<b>Sak 38/21</b>	<b>Godkjenning av referat fra 18.08.2021</b>
<b>Sak 39/21</b>	<b>Vurdering av HUIMM903</b> Saksforelegg
<b>Sak 40/21</b>	<b>Opprettelse av emnet VAC901</b> Saksforelegg
<b>Sak 41/21</b>	<b>Opprettelse av emnet Assessment of Occupational Exposure to Chemicals (INTH9XXX)</b> Saksforelegg
<b>Sak 42/21</b>	<b>ORIENTERINGSSAKER</b> <ul style="list-style-type: none"><li>• Søknader om nasjonale forskerskoler</li><li>• <a href="#">Forskningsrådet vil vite hvordan pandemien har påvirket forskningen</a></li></ul>
	<b>Eventuelt</b>

Martha Enger (s.)

Havjin Jacob. (s.)



## REFERAT MØTE I PROGRAMUTVALG FOR FORSKERUTDANNING

Onsdag 18.08.21, kl. 14.00-15.30

Sted: Digitalt møterom

**Til stede:** Marit Øilo (leder), Martha Enger, Elisabeth Wik, Magnus Vollset, Camilla Krakstad, Ester Kringeland, Erica Persson Teige.

**Fra administrasjonen:** Tone Friis Hordvik, Torunn Olsnes, Jorunn Hvalby, Havjin Jacob (sekretær)

**Meldt fravær:** Petur Benedikt Júlíússon, Trond Riise

<b>Sak 33/21</b>	<b>Godkjenning av innkalling og saksliste</b>  Godkjent
<b>Sak 34/21</b>	<b>Godkjenning av referat fra 02.06.2021</b> Godkjent Det medisinske fakultet har fortsatt ikke fått oppdatert emnebeskrivelse på HUIMM903.
<b>Sak 35/21</b>	<b>Resultater fra spørreundersøkelse om effekter av koronapandemien på ph.d.-kandidater og postdoktorer ved UiB</b>  Saksforelegg  88% av deltakere har besvart at de er forsinket. Kandidatene som er midt i ph.d.-perioden er mest påvirket, mens de som er i slutfasen har blitt mindre påvirket. Det som er gledelig er at det bare var 10% som melder at de har hatt mindre kontakt med veileder under korona pandemien.  Programutvalget diskuterte eventuelle tiltak for ph.d.-kandidater. Det kom frem at både sosiale arrangementer og seminar om psykisk helse kunne vært aktuelle tiltak. Det ble også diskutert at man måtte sørge for å få fortgang i saksbehandling av de forlengelsessøknadene.
<b>Vedtak</b>	<i>Programutvalg for forskerutdanning tar resultater fra spørreundersøkelsen om effekter av koronapandemien på ph.d.-kandidater og postdoktorer til etterretning.</i>

Sak 36/21	<p><b>ORIENTERINGSSAKER</b></p> <ul style="list-style-type: none"> <li>• <b>Programevaluering – status</b> De starter arbeidet i desember. De kommer 9.februar. Komiteen er to eksterne Bob Harris (leder av Orpheus ved Karolinska Institutet), Brita Solveig Pukstad (prodekan for ph.d.-utdanning og innovasjon, NTNU) og en intern ph.d.-kandidat (Ester Anne Kringeland, K2).</li> <li>• <b>Disputaser</b> Det åpnes opp for publikum på disputasene, men noen begrensninger. Må overholde den akademiske meteren. Det skal fortsatt legges til rette for digital opposisjon. Opponenten som oppholder seg i utlandet blir foreløpig ikke invitert hit. Opponenten fra Norge kan komme til Bergen dersom de selv ønsker det. Det blir fortsatt strømming av alle disputaser. Det vil bli åpent for spørsmål bare til de som er fysisk til stede for å gjøre det lettere for ph.d.-koordinatorene. Hovedveileder har ansvaret for registrering, og det skal oppbevares i 14 dager etter disputas.</li> <li>• <b>Forlengelser</b> De som er ansatt ved UiB har mulighet til å søke. Ikke eksterne. Det er ca. 100 kandidater som har søkt. Alle som har søkt har fått minst 1 måned forlengelse. Hvis vi regner ut hvor mange som har fått forlengelse så tilsvarer det ca. (4-5 stipendiat stillinger) Det blir derfor mindre stipendiat stillinger. Vi har fortsatt ikke oversikt over hvor mange stipendiater det kommer til å bli lyst ut.</li> <li>• <b>Registreringskriterier forskerskoler</b> Vi har fortsatt ikke fått tilbakemelding fra forskerskolene.</li> </ul>
	Eventuelt

Møtet er hevet kl. 14:50

Marit Øilo (s.)

Havjin Jacob. (s.)

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## Ny Vurdering av HUIMM903

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### Hva saken gjelder

Programutvalget har etter gjennomgang av kursporteføljen etterspurt en grundigere vurdering av HUIMM903. Prodekan og administrasjonen ved Det medisinske fakultet hadde et møte med emneansvarlig den 25.mai.2021. Emneansvarlig ble bedt om å legge frem oppdatert emnebeskrivelse.

Saken er tidligere diskutert i Programutvalget for forskerutdanning på møte 02.06.2021, og et brev ble sendt til K2 med kopi til emneansvarlig der vi ba om å få oppdatert emnebeskrivelse innen 25.juni 2021.

Det medisinske fakultet fikk en ny emnebeskrivelse den 06.09.2021.

### Vurdering

Timeplan for våren 2021 viser 44 forelesningstimer. Undervisningen skjer to ganger per uke i perioden januar til april. I beregningen av arbeidsmengde er det i tillegg en ytterligere forelesning og 4 timer kollokvium, totalt 50 timer. Denne forskjellen må anses å være minimal. Det er også lagt opp til 50 timer forberedelse og etterarbeid knyttet til forelesningene totalt gjennom kurset. Til sammen blir dette 98 timer som tilsvarer ca. 4 poeng.

Det er også lagt inn 200 timer ( $200/25 = 8$  stp) for å lese pensum (545 sider). Når vi vurderer spesialpensum, er det gitt 1 stp per 300 sider. Det gjøres oppmerksom på at det der er det hensyntatt at man ikke har undervisning som støtter opp under læringen. Med tanke på at pensum i dette kurset gjennomgås kapittel for kapittel i undervisningen, fremstår det som at uttellingen for pensum er svært generøs.

### Forslag til vedtak

1. HUIMM903 gis fornyet godkjenning fra og med vårsemesteret 2022 med 5 studiepoeng. Det bes om at K2 oppretter emnet med ny, egnet emnekode.
2. HUIMM903 gis fornyet godkjenning fra og med vårsemesteret 2022 med 6 studiepoeng. Det bes om at K2 oppretter emnet med ny, egnet emnekode.

**Vedlegg**

- Emnebeskrivelse HUIMM903
- Timeplan HUIMM903 (vår 2021)
- Beregning av arbeidstimer
- Oppdatert emnebeskrivelse HUIMM903

HAJA/01.10

PHD COURSE

# Human Immunobiology

**ECTS credits**

10

**Teaching semester**

Spring

**Course code**

HUIMM903

**Resources**

## Course description

### Language of instruction

English (Norwegian on request).

### Course content

The course covers the main areas of immunology,  
with special focus on the role in health and disease.

### Learning outcomes

#### \* Knowledge

After completing the course the student should be able to:

- Recognize the main types of cells, tissues, signal molecules and bioactive factors (components), which the immune system is comprised of.

- Outline the development and maturation process of immune competent cells.
- Understand the basic mechanisms for how the immune system becomes activated and responds to stimuli e.g. infections or tissue damage.
- Have knowledge about the basic principles for defence and fight against infections. Present methods/treatment that can strengthen the immunity against infectious agents (e.g. vaccination).
- Account for main groups of diseases related to a failing immune system (auto immunity, allergy and immune deficiency) and describe in general the disease processes.
- Outline methods for treatment of immune related diseases and symptoms..

### \* **Skills**

- Describe how immunological methods can be used in biological and medical research.
- Apply the immunological knowledge to own research project.

### \* **General Competence**

- Obtain a general knowledge of how the immune system work in health and disease.
- To be able to distinguish the immunological component in a variety of complex health issues.
- Understand the importance of using immunological knowledge in both prevention and combating diseases.

## **Study period**

In general, from February to May, every Tuesdays and Thursdays from 12:15-14:00, with exam in May/June. A detailed program is prepared prior to start of course, please contact the course coordinator for more information.

## **Credits (ECTS)**

10 (ECTS)

## **Specific terms**

## **Course registration and deadlines**

The registration deadline for Spring semester is February 1st.

## Pre-requirements

- The student should be at post-graduate level (have a MSc or equivalent)
- No knowledge immunology is needed, but advantageous
- Basic knowledge of human biology

## Recommended previous knowledge

- No special requirements, but basic cell biology and immunological knowledge is advantageous.

## Part of training component

- Part of the formal training of the PhD program.

## Form of assessment

Oral Examination

A-F.

## Course overlap

The course is overlapping with [HUIMM303 \(/en/course/HUIMM303\)](/en/course/HUIMM303) and MOL212.

## Who may participate

PhD-students.

## Additional information

### Programme

#### Program

- 20 x 2 hour lectures
- project work
- exam



A detailed program is prepared prior to start of course,  
please contact the course coordinator for more information.

## Contact

Course coordinator: Yenan Bryceson (yenan.bryceson@ki.se)

Bergen Research School in Inflammation (BRSI)

Broegelmanns Forskningslaboratorium, Department of clinical science

Administration: studie@kliniskmedisin.uib.no

## Academic responsibility

Spring 2020: Karl Albert Brokstad E-mail: karl.brokstad@uib.no

New Course Coordinator from 2021.

Bergen Research School in Inflammation (BRSI)

Broegelmanns Forskningslaboratorium, Department of clinical science

## Lecturers

### Teachers/Lecturers

Karl Albert Brokstad, Senior Scientist

Roland Jonsson, Professor

Torbjørn Hansen, Ass. Professor

Silke Appel, Senior Scientist

Rebecca Jane Cox, Professor

Elling Ulvestad, Professor II

Einar Kristoffersen, Professor II

## Reading list

The syllabus will be covered by lectures and the text book:

Abbas, Lichtman and Pillai. Cellular and Molecular Immunology. 7th Edition, 2011, Saunders Elsevier, ISBN 978-1-4377-1528-6.

Alternative text book (Norwegian): Bogen and Munthe. Immunologi 2. Utg, 2007, Universitetsforlaget, Oslo, ISBN 978-8-2150-1093-9.

## Course location

Lab. building / BB-building &

Haukeland University Hospital.

CONTACT



SELECT SEMESTER

[Spring 2021 \(Previous semester\) \(?sem=2021v\)](#)

[Autumn 2021 \(Current semester\) \(?sem=2021h\)](#)

[Spring 2022 \(Next semester\) \(?sem=2022v\)](#)

[Department of Clinical Science \(/en/clin2\)](#)

STUDY PERIOD

In general, from February to May, every Tuesdays and Thursdays from 12:15-14:00, with exam in May/June. A detailed program is prepared prior to start of course, please contact the course coordinator for more information.



Semester

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Campus

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[Abonner på disse aktivitetene](#)
[Sorter etter undervisningsform](#)
[Vis timeplan uke](#)
[Detaljer](#)
[Last ned til Excel](#)
[Skjul tidligere undervisning](#)

## Kalenderuke 4

Dato	Tid	Aktivitet	Rom	Fagperson
ti. 26.01.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning <a href="#">Se MittUiB</a>	Y. Bryceson
to. 28.01.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning <a href="#">Se MittUiB</a>	T. Holmes

## Kalenderuke 5

Dato	Tid	Aktivitet	Rom	Fagperson
ti. 02.02.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning <a href="#">Se MittUiB</a>	Y. Bryceson
to. 04.02.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning <a href="#">Se MittUiB</a>	S. Appel

## Kalenderuke 6

Dato	Tid	Aktivitet	Rom	Fagperson
ti. 09.02.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning <a href="#">Se MittUiB</a>	S. Appel
to. 11.02.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning <a href="#">Se MittUiB</a>	S. Appel

## Kalenderuke 7

Dato	Tid	Aktivitet	Rom	Fagperson
ti. 16.02.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	T. Holmes
to. 18.02.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	T. Holmes

## Kalenderuke 8

Dato	Tid	Aktivitet	Rom	Fagperson
ti. 23.02.2021	12:15 - 14:00	Forelesninger/ presentasjoner Immunologi	Digital undervisning Se MittUiB	Y. Bryceson

## Kalenderuke 9

Dato	Tid	Aktivitet	Rom	Fagperson
to. 04.03.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	Y. Bryceson

## Kalenderuke 10

Dato	Tid	Aktivitet	Rom	Fagperson
ti. 09.03.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	Y. Bryceson

## Kalenderuke 11

Dato	Tid	Aktivitet	Rom	Fagperson
ti. 16.03.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	K.A. Brokstad
to. 18.03.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	K.A. Brokstad

## Kalenderuke 12

Dato	Tid	Aktivitet	Rom	Fagperson

ti. 23.03.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	Y. Bryceson
to. 25.03.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	

## Kalenderuke 14

Dato	Tid	Aktivitet	Rom	Fagperson
ti. 06.04.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	T.E. Ulvestad
to. 08.04.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	S. Appel

## Kalenderuke 15

Dato	Tid	Aktivitet	Rom	Fagperson
ti. 13.04.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	S. Appel
to. 15.04.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	Y. Bryceson

## Kalenderuke 16

Dato	Tid	Aktivitet	Rom	Fagperson
ti. 20.04.2021	12:15 - 14:00	Forelesninger/ presentasjoner Immunologi	Digital undervisning Se MittUiB	E.K. Kristoffersen

## Kalenderuke 17

Dato	Tid	Aktivitet	Rom	Fagperson
ti. 27.04.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	E.K. Kristoffersen
to. 29.04.2021	12:15 - 14:00	Forelesninger/ presentasjoner	Digital undervisning Se MittUiB	E.K. Kristoffersen

TP-versjon:

74.2.3: PROD

**Kontaktinformasjon**

Kontakt lokalt [institutt/fakultet](#) dersom du har spørsmål knyttet til innholdet i selve timeplanene.

Send epost til [tp@uib.no](mailto:tp@uib.no) dersom du har tekniske spørsmål til systemet.

**Ansvarlig for denne tjenesten**

[Studieavdelingen](#)

[Bruk av informasjonskapsler/cookies](#)

Study workload calculation sheet HUIMM903

Contact teaching hours (=CT)	50 (46 t forelesning, 4 timer kollokvium)
Independent study hours related to CT 1-2 before CT, 1-2 after CT	50
Reading the material (3-5 pages/h)	150 (545 sider)
Writing the assignments (50-200 words/h)	-
Exams (if separate)	1
Other time demands taken into account (Discussion about assignment, preparation to write)	10
Sum of study hours (SH)	261
Conversion to ECTS-credits (SH/1600x60)	9,79 (~10)

## **Course description**

### **Language of instruction**

English (Norwegian on request).

### **Course content**

The course covers the main areas of immunology, with special focus on the role in health and disease.

### **Learning outcomes**

#### **\* Knowledge**

After completing the course the student should be able to:

- Recognize the main types of cells, tissues, signal molecules and bioactive factors (components) which the immune system is comprised of.
- Outline the development and maturation process of different immune competent cells.
- Understand the basic mechanisms for how the immune system becomes activated and responds to stimuli e.g. infections or tissue damage at a molecular and cellular level.
- Have knowledge about the basic principles for defence and fight against infections. Present methods/treatment that can strengthen the immunity against infectious agents (e.g. vaccination).
- Account for main groups of diseases related to a failing immune system (autoimmunity, allergy, hypersensitivity, and immune deficiency) and describe in general the disease processes.
- Outline methods for treatment of immune related diseases and symptoms.

#### **\* Skills**

- Describe how immunological methods can be used in biological and medical research.
- Apply the immunological knowledge to own research project.

#### **\* General Competence**



- Obtain a general knowledge of how the immune system work in health and disease.
- To be able to distinguish the immunological component in a variety of complex health issues.
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### **Study period**

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### **Credits (ECTS)**

10 (ECTS)

### **Specific terms**

#### **Course registration and deadlines**

The registration deadline for Spring semester is February 1st.

### **Pre-requirements**

- The student should be at post-graduate level (have a MSc or equivalent)
- No knowledge immunology is needed, but advantageous
- Basic knowledge of human biology

### **Recommended previous knowledge**

- No special requirements, but basic cell biology and immunological knowledge is advantageous.

### **Part of training component**

- Part of the formal training of the PhD program.

### **Form of assessment**

Oral Examination

A-F.

## **Course overlap**

The course is overlapping with [HUIMM303](#) and MOL212.

## **Who may participate**

PhD-candidates

## **Additional information Programme**

### **Program**

- 23 x 2 hours lectures
- 2 x 2 h kollokvium
- Independent study hours (approx. 200)
  
- exam

A detailed program is prepared prior to start of course,  
please contact the course coordinator for more information.

## **Contact**

Course coordinator: Yenan Bryceson (yenan.bryceson@ki.se)

Bergen Research School in Inflammation (BRSI)

Broegelmanns Forskningslaboratorium, Department of Clinical Science

Administration: studie@kliniskmedisin.uib.no

## **Academic responsibility**

Yenan Bryceson E-mail: yenan.bryceson@ki.se

Bergen Research School in Inflammation (BRSI)

Broegelmanns Forskningslaboratorium, Department of Clinical Science

## **Lecturers**

## **Teachers/Lecturers**

Silke Appel, professor

Karl Albert Brokstad, Senior Scientist

Yenan Bryceson, Professor II

Tim Holmes, Scientist

Einar Kristoffersen, Professor II

Elling Ulvestad, Professor II

### **Reading list**

The syllabus will be covered by lectures and the text book:

Abbas, Lichtman and Pillai. Cellular and Molecular Immunology. 10th Edition, 2021, Saunders Elsevier, ISBN9780323757485.

### **Course location**

Digital; Lab. building / BB-building & Haukeland University Hospital.

DET MEDISINSKE FAKULTET

PROGRAMUTVALGET FOR FORSKERUTDANNING

MØTE 13.10.2021

SAK 40/21

ePhorte.nr. 2021/12844-1

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### **Søknad om opprettelse av emne – Vaccinology (VAC901)**

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#### **Hva saken gjelder**

Som ledd i den nasjonale forskerskolen IBA (Infection Biology and Antimicrobials) sin aktivitet er det lagt til et kurs i Vaksinologi som er bygget på HUVIR320 kurset. Emneansvarlig, Kurt Hanevik, søker om opprettelse av dette emnet som et nytt emne, på 900-nivå. Søknaden er støttet av fungerende instituttleder ved K2.

Kurset går over fire dager med sammenhengende forelesninger, gruppearbeid og presentasjoner. Forberedende arbeid med skriftlig oppgave og presentasjon antas å ta fem dager. Kurslitteratur er på 350 sider.

Antall studiepoeng: 2

#### **Forslag til vedtak**

1. Programutvalget godkjenner opprettelsen av emnet «Vaccinology». Studiepoengtildeling angis dersom denne fraviker foreslått studiepoengtildeling.
2. Programutvalget godkjenner ikke opprettelsen av emnet i nåværende form. Begrunnelse og forslag til revidering gis.

#### **Vedlegg**

1. Oversendelsesbrev
2. Emnebeskrivelse
3. Tentativt kursprogram

HAJA/20.09.2021



Det medisinske fakultet

Referanse

2021/12844-THEM

Dato

10.09.2021

## Oversendelse av søknad om opprettelse av emnet VAC901

Videreformidler søknad om opprettelse av nytt emne på 900-nivå – VAC901. Vedlagt er e-post med søknadstekst fra Kurt Hanevik og Rebecca Cox, emnebeskrivelse og tentativt program.

Gi gjerne beskjed om dere trenger noe mer informasjon.

Vennlig hilsen

Maria Holmaas  
administrasjonssjef

Thea Midtun  
førstekonsulent / studiekonsulent

Dette er et UiB-internt notat som godkjennes elektronisk i ePhorte

**Emne:** FW: Søknad om nytt emne VAC901 Vaccinology  
**Vedlegg:** Emnebeskrivelse søknad - VAC901 09sept2021.doc; IBA-Vaccinology-course-2021-tentative-program 25th Aug.pdf

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**From:** Kurt Hanevik <Kurt.Hanevik@uib.no>  
**Sent:** Friday, September 10, 2021 8:52 AM  
**To:** Thea Midtun <Thea.Midtun@uib.no>  
**Cc:** Silke Appel <Silke.Appel@uib.no>; Rebecca Jane Cox Brokstad <Rebecca.Cox@uib.no>  
**Subject:** Søknad om nytt emne VAC901 Vaccinology

Hei Thea,

Her er utkast til søknad om oppretting av VAC901 Vaccinology kurs på Med.Fak. Har lent meg ganske godt på HUVIR320 masternivå kurset, særlig mtp læringsmålene. Om dette ser greit ut, er det flott om du sender videre til programutvalget.

Kurt

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Til programutvalget

### **Søknad om oppretting av nytt emne på forskernivå**

Det søkes herved om å få opprette et nytt emne ved Medisinsk fakultet. Årsaken er at det som ledd i forskerskolen IBA (Infection Biology and Antimicrobials) sin aktivitet er lagt et kurs i Vaksinologi ( <https://www.ibaschool.no/2021/08/04/iba-course-vaccinology/> ) til UiB, som vi i diskusjon med fakultetet helst bør få registrert i FS etter råd fra Thea Midttun og Marit Bergheim og Torunn Olsnes. Kurset var først tenkt å være en noe tilpasset versjon av masterkurset HUVIR320, men vi har fått beskjed om at det er for ulikt, og skal være på PhD-nivå. Der vil være deltakere både fra andre norkse universiteter og fra svenske universiteter gjennom en søsterforskerskole i Sverige. Søknaden kommer derfor nå etter at dette har blitt klargjort fra oss. Program og påmelding via IBA forskerskole er i ferd med å ferdigstilles for 2021, med 26 påmeldte, hvorav 5 fra UiB. Tentativt program er vedlagt.

Vi anser ut fra kriterier for arbeidsmengde for kurs på PhD nivå at 2 ECT vil kunne passe. Kurset går over fire dager sammenhengende forelesninger, gruppearbeid og student presentasjoner. Forberedende arbeid med skriftlig oppgave og presentasjon antas å ta fem dager. Kurslitteratur er på ca 350 sider.

Opprettelsen av kurset er diskutert med fungerende instituttstyrer ved K2 Silke Appel som støtter at emnet opprettes.

**Emnebeskrivelse** (se vedlagt)

#### **Beskrivelse av forskerskolen** <https://www.ibaschool.no/>

The National Graduate School in Infection Biology and Antimicrobials (or IBA) is a research school (forskerskole) funded by the Research Council of Norway, coordinated at the University of Oslo. Both PhD students and postdocs registered at Norwegian universities are welcome to [apply for membership](#) in IBA. Our program funds [courses and workshops](#) and [research stays abroad/in Norway](#), has annual networking meetings, and we support participation in these activities by [co-funding](#) of travel and accommodation costs.

**Emnekode (foreslår VAC901)** siden dette kan være et kurs vi kan arrangere også etter at denne forskerskolen evt avsluttes.

Med vennlig hilsen,  
Kurt Hanevik og Rebecca Cox

<b>NORSK</b>	<b>ENGELSK</b>
<b>Kurskode</b> VAC901	<b>Course code</b> VAC901
<b>Studienivå</b> Ph.d.	<b>Level</b> <b>PhD</b>
<b>Kursnavn</b> Vaksinologi	<b>Name</b> Vaccinology
<b>Kortnavn</b> Vaksinologi	<b>Short name</b> Vaccinology
<b>Stedkode</b> ??	
<b>Fagkode</b> (fylles ut av administrasjonen ved instituttet)	<b>Subject code</b>
<b>Kursinnhald</b>  Kurst vil dekke et bredt felt av kunnskap om vaksiner og vaksineutvikling. Sentrale temaer er immunologisk basis for vaksiners funksjon, korrelater for beskyttelse, ulike vaksine typer, og måter å gi dem på. Kurset dekker også et historisk tilbakeblikk på vaksiner, og rollen som adjuvanter spiller samt de ulike trinnene i vaksineutvikling, med fokus på den prekliniske delen. De mest vanlige vaksiner på markedet vil gjennomgås, inkludert vaksiner mot fiskesykdommer. En tar også opp forhold rundt lisensiering og prioritering av vaksiner, samt vaksineskepsis.	<b>Course content</b>  The course covers a wide field of knowledge on vaccination and vaccine development. Central topics are immunological understanding of vaccine function, correlates of protection, vaccine technologies and modes of delivery, The course also covers a historical resume of vaccination, the role of adjuvants, and the stages of vaccine development focusing on the pre-clinical part. Widely used vaccines will be presented, including vaccines against fish diseases. Also, regulatory issues around licensing and prioritization of vaccines and vaccine skepticism will be presented and discussed.
<b>Læringsutbytte</b>  Studenten skal ved avslutta emne <i>ha</i> kunnskap om:  hvordan vaksiner virker, inkludert immunologisk og epidemiologisk  de forskjellige typer vaksiner og retningslinjer for dagens vaksinasjonspraksis  den historiske bakgrunnen til de viktigste vaksinene.  regler og forskrifter for testing av nye vaksiner og viktige utviklingsstadier, for eksempel prekliniske og kliniske (fase I-IV) utprøvinger  forstå utfordringene i utviklingen av nye	<b>Learning outcomes</b>  On completion of the course the students should have knowledge of:  how vaccines work including immunologically and epidemiologically  the different types of vaccines and guidelines for current vaccination practices  understand the historical background of the most important vaccines.  the rules and regulations for testing new vaccines and key developmental stages such as pre-clinical and clinical (Phase I-IV) vaccine trials  understand the challenges in the development of



<p>vaksiner</p> <p>Studenten skal ved avslutta emne har utviklet ferdigheter til å:</p> <p>kritisk kunne diskutere fordeler og ulemper ved dagens vaksiner med andre PhD studenter</p> <p>forklare utfordringene i utvikling, klinisk testing og godkjenning av nye vaksiner</p> <p>diskutere nøkkellitteratur i vaksinologi</p> <p>Studenten skal ved avslutta emne ha utviklet generell kompetanse og kunne</p> <p>forstå bakgrunnen for bruk av nåværende vaksiner og reflektere over utfordringene og mulighetene til nye vaksinestrategier</p> <p>forstå prioriteringer og etikk ved bruk av vaksiner og være i stand til å veie fordelene (f.eks. beskyttelse) mot potensielle ulemper (bivirkninger) av vaksinasjon</p>	<p>new vaccines</p> <p>The students should have developed skills to be able to</p> <p>critically discuss the advantages and disadvantages of current vaccines with other PhD students</p> <p>explain the challenges in development, clinical testing and approval of new vaccines</p> <p>discuss key literature in vaccinology</p> <p>The students should have developed general competence and be able to</p> <p>comprehend the background for the use of current vaccines and reflect upon the challenges and opportunities of new vaccine strategies</p> <p>know the priorities and ethics surrounding the use of vaccines and be able to weigh the benefits (e.g. protection) against the potential disadvantages (side effects) of vaccination.</p>
<p><b>Undervisingspråk</b> English</p>	<p><b>Language of instruction</b> English</p>
<p><b>Fagleg ansvar</b> Kurt Hanevik and Rebecca Cox</p>	<p><b>Academic responsibility</b> Kurt Hanevik and Rebecca Cox</p>
<p><b>Kontaktinformasjon</b> <a href="mailto:Kurt.Hanevik@uib.no">Kurt.Hanevik@uib.no</a> Tel: 93856690 Klinisk institutt 2, Med.Fak, UiB</p>	<p><b>Contact information</b> <a href="mailto:Kurt.Hanevik@uib.no">Kurt.Hanevik@uib.no</a> Tel: 93856690 Klinisk institutt 2, Med.Fak, UiB</p>
<p><b>Undervisingsperiode</b> 4 dager i starten av oktober (4-7.oktober 2021)</p>	<p><b>Study period</b> 4 days in early October (4-7.oktober 2021)</p>
<p><b>Studiepoeng</b> 2</p>	<p><b>Credits (ECTS)</b> 2</p>
<p><b>Påmelding og – fristar</b> Påmelding via IBA webside eller UiB. Påmeldingsfrist normalt i slutten av august.</p>	<p><b>Course registration and deadlines</b> Registration via IBA webpages or UiB. Deadline normally by end of August.</p>

<p><b>Kven kan delta</b>          Studenter tilknyttet forskerskolen «National Graduate School in Infection Biology and Antimicrobials» og den svenske forskerskolen «National Doctoral Programme in Infection and Antibiotics (NDPIA)» vil prioriteres, men også andre studenter ved norske universiteter vil kunne delta.</p>	<p><b>Who may participate</b>  <b>PhD-students enlisted in the National Graduate School in Infection Biology and Antimicrobials” or the Swedish «National Doctoral Programme in Infection and Antibiotics (NDPIA)» will be prioritized, but also other PhD-students at Norwegian universities may participate.</b></p>
<p><b>Krav til forkunnskaper</b>          Master i relevant fagfelt. PhD student i relevant tema.</p>	<p><b>Pre-requirements</b>          Master in relevant field. PhD-student in relevant topic.</p>
<p><b>Program</b>          Fire dagers intensivkurs med forelesninger, gruppearbeid og student presentasjoner. Forberedende arbeid antas å ta fem dager, og innebærer gjennomlesing av kurslitteratur og å lage en presentasjon av oppgitt tema. Kurslitteratur er på ca 350 sider.</p>	<p><b>Program</b>          A four-day intensive course with lectures and group work and student presentations. Preparatory work (reading presentation preparation) is estimated to 5 days, and involves reading the course literature and make a presentation about a given topic. Course literature is around 350 pages.</p>
<p><b>Vurderingsform</b>          Deltagere bidrar med en skriftlig oppsummering og 1-2 ca 15 minutters presentasjon av utdelte tema underveis i kurset. Disse blir evaluert av kursleder og bedømmes som bestått eller ikke bestått. Studentene vil også bli gitt spørsmål, fulgt av en felles oppsummering med svar, ved kursavslutning. Dette gir en mulighet for egenvurdering av utbytte.</p>	<p><b>Form of assessment</b>          Participants will contribute 1-2 presentations of selected topics during the course. These will be evaluated by the course leader and marked as failed or passed. Student will also be given a set of questions followed by a plenary session with answers at the end of the course, as a self-assessment tool.</p>
<p><b>Undervisningsstad</b>          Fysisk undervisning ved Bergen UiB campus. Digital deltagelse muliggjøres når dette er nødvendig.</p>	<p><b>Course location</b>          Physical teaching at Bergen UiB campus. Digital participation will be made possible when this is necessary.</p>
<p><b>Tilrådde forkunnskaper</b>          Basiskunnskaper i immunologi, genetikk, mikrobiologi, epidemiologi.</p>	<p><b>Recommended previous qualifications</b>          Basic knowledge in immunology, genetics, microbiology and epidemiology.</p>
<p><b>Utfyllende kursomtale</b>Se vedlagte kursbeskrivelse</p>	<p><b>Supplementary course content</b>          See attached course description</p>
<p><b>Inngår i opplæringsdel</b>          Ja, PhD-program</p>	<p><b>Part of training component</b>          Yes, PhD-program</p>
<p><b>Litteratur</b>          Epidemiology and Prevention of Vaccine-Preventable Diseases. The Pink Book: Course Textbook – 13th Edition (2015). 23 chapters,</p>	<p><b>Reading list</b>          Epidemiology and Prevention of Vaccine-Preventable Diseases. The Pink Book: Course Textbook – 13th Edition (2015). 23 chapters,</p>

<p>most were updated in 2020.  <a href="https://www.cdc.gov/vaccines/pubs/pinkbook/chapters.html">https://www.cdc.gov/vaccines/pubs/pinkbook/chapters.html</a>                  Reviewartikkel: Pollard A &amp; Bijker EM. A guide to vaccinology: from basic principles to new developments. Nature reviews – immunology. Feb 2021. Vol 21 page 83-100.  <a href="https://doi.org/10.1038/s41577-020-00479-7">https://doi.org/10.1038/s41577-020-00479-7</a></p>	<p>most were updated in 2020.  <a href="https://www.cdc.gov/vaccines/pubs/pinkbook/chapters.html">https://www.cdc.gov/vaccines/pubs/pinkbook/chapters.html</a>                  Review article: Pollard A &amp; Bijker EM. A guide to vaccinology: from basic principles to new developments. Nature reviews – immunology. Feb 2021. Vol 21 page 83-100.  <a href="https://doi.org/10.1038/s41577-020-00479-7">https://doi.org/10.1038/s41577-020-00479-7</a></p>
<p><b>Fagleg overlapp</b>                  Betydelig tematisk overlapp med UiB master nivå kurset HUVIR320 som er 20 på timer over mange uker. VAC901 organiserer i samarbeid med IBA forskerskolen og vil diskutere same temaer på et meir avansert nivå. Kurset retter seg mot Skandinaviske PhD studenter som forsker i relevante fagfelt. Nettverksbygging er et viktig aspekt ved kurset.</p>	<p><b>Course overlap</b>                  Considerable thematic overlapping with the UiB master level course HUVIR320 which is 20 hours over several weeks. VAC901 is organized in collaboration with the IBA research school and will discuss the topics at a more advanced level. The course is ment for Scandinavian PhD students doing research in the vaccinology field. Networking is an important aspect of the course.</p>
<p><b>Innleiarar</b>  <b>Lokal kurs komite:</b> Kurt Hanevik, Rebecca Cox, Amit Bansal and Camilla Ekanger                   For 2021 se vedlagt program</p>	<p><b>Lecturers</b>  <b>Local course committee:</b> Kurt Hanevik, Rebecca Cox, Amit Bansal and Camilla Ekanger                   For 2021 see attached program</p>

Mal for forside til emnebeskrivingar ved UiB:

Emnebeskriving for ..... (Namn på emnet, nynorsk)

..... (Navn på emnet,, bokmål)

..... (Name of the course, English)

**Godkjenning:**

*Emnebeskrivinga er godkjend av (Fakultetet brukar nemningar for godkjenningsorgan i samsvar med eigen praksis.):*

*Programutvalget: .....(dd.mm.år)*

*Institutt for ..... : .....(dd.mm.år)*

*..... fakultet: .....(dd.mm.år)*

*Emnebeskrivinga vart justert: .....(dd.mm.år) av*

.....

**Evaluering:**

*Emnet vart sist evaluert: .....(dd.mm.år)*

*Neste planlagde evaluering: .....(dd.mm.år)*

## Tentative program pr 24<sup>st</sup> August 2021 (to be updated)

### Monday 4<sup>th</sup>

9:00 Welcome

9:15 **Bjarne Bjorvatn, Professor emeritus, UiB** – Historical perspective on vaccine development  
(accepted to speak on Monday morning)

10:15 **Einar Kristoffersen, MD, PhD, Haukeland University Hospital** - Immunological background for how infection and vaccines provide protection against future infection

11:00 Break

11:15 **Interactive group work** – Course literature - The Pink book

12:00 Lunch

13:00 **Else Bijker, Postdoctoral researcher, Oxford Vaccine Group, University of Oxford** – Vaccine types

13:45 Break

14:00 **Stanley Plotkin, Professor emeritus of Virology, University of Pennsylvania** – Mode of vaccine delivery and correlate of protection

15:00 Break

15:15 **Bali Pulendran, Professor, Stanford University** - Important role of adjuvants in modulating/enhancing vaccine induced immunity

16:15 End

### Tuesday 5<sup>th</sup>

08:30 **Gunnveig Grødeland, Senior researcher, Institutt for klinisk medisin, UiO** - Nucleic acid vaccines

09:15 Break

09:30 **Gunnveig Grødeland, Senior researcher, Institutt for klinisk medisin, UiO** – Preclinical vaccine development and animal models. Vaccibodies development as an example.

10:15 Break

10:30 **Unconfirmed** – Organoid models in vaccine development

11:15 Student presentations

12:00 Lunch

13:00 Student presentations

14:00 **Kurt Hanevik, Ass. professor, K2, UiB** - Controlled human infection studies in theory and practice

15:00 **Florian Krammer, Professor, Department of Microbiology, Icahn School of Medicine, Mount Sinai** – Antigen discovery & vaccine development

16:00 End

### **Wednesday 6<sup>th</sup>**

08:30 **Ole Erik Iversen, Professor emeritus, UiB** - HPV vaccine

09:15 **Rebecca Cox, Professor, K2, UiB** – Influenza vaccine

10:15 Student presentations - Vaccines against viruses

12:00 Lunch

13:00 Student presentations – Vaccines against bacteria

13:30 **A Louis Bourgeois, Science Officer, Enteric and Diarrheal Diseases, PATH** - Vaccines for Diarrheal diseases

14:15 **Jorunn Jørgensen, Professor, Norges fiskerihøgskole, UiT** - Fish vaccines

15:00 Student presentations – Vaccines against protozoans

15:30 **Tehmina Mustafa, CIH, UiB** - BCG vaccine

16:00 End

### **Thursday 7<sup>th</sup>**

08:30 **Unconfirmed, EMEA** - Licencing of vaccines

09:15 Break

09:15 **Svein Rune Andersen, Scientific Director, Norwegian Medicines Agency** – Clinical evaluation and licensing of vaccines, and post-licensing surveillance

09:45 Break

10:00 **Kristin Mohn, Ass. professor, K2, UiB** - Vaccine prioritization

10:45 Break

11:00 **Group activity** – Vaccine skepticism

12:00 Lunch

13:00 Student presentations

14:00 Interactive test and course evaluation

15:30 End

## About the lecturers (in order of appearance)



Bjarne Bjorvatn is professor of medicine and specialist of infectious diseases. He is well known for his work with vaccine programs. Han er kjent for sitt arbeid med vaksineprogrammer. He initiated the Center for International Health at University of Bergen and was its first director from 1988. From 1994 to 1996 he worked in the European commission with coordination of vaccine research. From 1998 to 2013 he was a consultant at the Department of vaccines at WHO in Geneva.



Einar Klæboe Kristoffersen is professor of immunologi and transfusion medicine at University of Bergen. From 2021 he is director of the Department of immunology and transfusion medicine at Haukeland University Hospital. He has broad experience as a lecturer in immunology and leads the advisory council for the immunodeficiency patient organization. He is actively involved in research on immune regulation, infection immunity and stem cells.



**Else Bijker** is a paediatrician and postdoctoral researcher at the Oxford Vaccine Group, working on the Novel and Optimized Diagnostics in Pediatric Tuberculosis (NOD) and The Feasibility of Novel Diagnostics for TB in Endemic Countries Consortium (FEND) studies.



**Stanley Alan Plotkin** is an American physician who works as a consultant to vaccine manufacturers, such as Sanofi Pasteur, as well as biotechnology firms, non-profits and governments. In the 1960s, he played a pivotal role in discovery of a vaccine against rubella virus while working at Wistar Institute in Philadelphia. Plotkin was a member of Wistar's active research faculty from 1960 to 1991. Today, in addition to his emeritus appointment at Wistar, he is emeritus professor of Pediatrics at the University of Pennsylvania. His book, *Vaccines*, is the standard reference on the subject. He is an editor with *Clinical and Vaccine Immunology*, which is published by the American Society for Microbiology in Washington, D.C.



**Bali Pulendran** is a Violetta L. Horton Professor and Professor of Microbiology & Immunology at Stanford University. His work focuses on understanding the mechanisms by which the innate immune system regulates adaptive immunity and harnessing such mechanisms in the design of novel vaccines against global pandemics. More recently, he has begun to apply systems biological approaches to predicting the efficacy of vaccines and deciphering new correlates of protection against infectious diseases.



**Gunnveig Grødeland** has a PhD in immunology and vaccinology from 2013. She is developing new vaccine concepts to offer broad protection against rapidly mutating viruses, which can be produced rapidly against emerging pandemic threats. She is currently a senior researcher and principal investigator in the research group *Influenza and adaptive immunity*, Department of Immunology at University of Oslo.



**Kurt Hanevik** is a specialist in infectious diseases. PhD in Giardia immunology and post-infectious sequels in 2012. Interest and experience in international humanitarian aid and global health. Involved in research on ETEC, Giardia and Cryptosporidium diagnostics, epidemiology and immunology. Coordinated a human ETEC challenge model and characterization of immune responses against ETEC.



**Prof. Florian Krammer** received his advanced training in biotechnology and applied virology at the University of Natural Resources and Life Sciences, Vienna where he gained extensive experience with expression and purification of recombinant (glyco-) proteins and influenza virus-like particles. He established various expression systems for these proteins using insect cells/baculovirus, mammalian cells, bacteria, yeast and plants. Furthermore, he worked on a novel influenza virus rescue system based on baculovirus transduction of mammalian cells and a novel bioassay to measure inhibition of the influenza virus polymerase complex by cap-snatching inhibitors.





**Ole Erik Iversen** is professor emeritus at University of Bergen. He is a specialist of gynecology and obstetrics. He has worked extensively with HPV vaccine research and contributed importantly to the public discourse on its use.



Rebecca Cox is a professor of medical Virology and head of the Influenza Centre at the University of Bergen. She completed her Ph.D. in 1995 at the London Hospital Medical College, University of London. Her research has focused on preclinical and clinical research into seasonal and pandemic influenza vaccines. The main areas of research are preclinical research and development of novel adjuvants and influenza vaccines, clinical trials of new influenza vaccines from phase I to IV with focus on detailed characterization of the immune response. Recently she has also become deeply involved in corona virus research.



**A Louis Bourgeois** has a PhD in Microbiology from Georgetown University in Washington, DC and a Master's in Public Health from JHBSPH. For the past 35 years, he has worked extensively on the mucosal adjuvant dmLT, as well as on ETEC, Shigella and Campylobacter vaccine development as a member of the U.S. Navy's Enteric Disease Research Program, as faculty member in the Center for Immunization Research, Johns Hopkins Bloomberg School of Public Health (JHBSH) in Baltimore, Maryland Science, and more recently as a Science Officer at the Enteric and Diarrheal Diseases program of the PATH.



Jorunn Jørgensen is a professor at the Norwegian College of Fishery Science, University of Tromsø. She works on comparative immunology, antiviral immunity and viruses



Tehmina Mustafa is Professor at Centre for International health, University of Bergen. She has research experience on various aspects of tuberculosis, including epidemiological, clinical and basic laboratory research on immunology, pathology, and diagnosis of disease. She is the leader of the Tuberculosis Research Group at the Centre for International Health.



**Kristin Greve-Isdahl Mohn** is associate professor at the Department of Clinical Science at University of Bergen. She is an infectious disease specialist and is engaged in clinical and immunological research on influenza and corona viruses.

DET MEDISINSKE FAKULTET

PROGRAMUTVALGET FOR FORSKERUTDANNING

MØTE 13.10.2021

SAK 41/21

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**Søknad om opprettelse av emne – Assessment of Occupational Exposure to Chemicals (INTH9XXX)**

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**Hva saken gjelder**

IGS ved emneansvarlige Bente E. Moen og Magne Bråtveit. ønsker å opprette følgende emne:

Assessment of Occupational Exposure to Chemicals (5 studiepoeng)

Dette kurset er intensivt over fire uker. De har beregnet en arbeidsmengde på totalt 125 timer, med forelesninger, gruppearbeid, felt arbeid, presentasjoner, og skriftlig oppgave.

**Forslag til vedtak**

1. Programutvalget godkjenner opprettelsen av emnet «Assessment of Occupational Exposure to Chemicals». Studiepoengtildeling angis dersom denne fraviker foreslått studiepoengtildeling.
2. Programutvalget godkjenner ikke opprettelsen av emnet i nåværende form. Begrunnelse og forslag til revidering gis.

**Vedlegg**

1. Emnebeskrivelse
2. Tentativt kursprogram

HAJA/01.10.2021

## Emnebeskrivelse for Assessment of Occupational Exposure to Chemicals (INTH9XXX)

### *Godkjenning:*

*Emnebeskrivinga er godkjend av:*

*Emnebeskrivinga vart justert:*

### *Evaluering:*

*Emnet vart sist evaluert: .....(dd.mm.år)*

*Neste planlagde evaluering: .....(dd.mm.år)*

Kategori	Tekst
Course Code	INTH9XX
Namn på emnet, nynorsk	
Namn på emnet, bokmål	
Course Title, English	Assessment of Occupational Exposure to Chemicals (blended course)
ECTS Credits	5
Level of Study	PhD
Full-time/Part-time	Full-time
Language of Instruction	English
Semester of Instruction	Spring
Place of Instruction	Centre for International Health. The course will be online for the theoretical part. The 16 hours field work will be organized in Bergen for students located in Norway. For students located in partner countries, the 16 hours field work will be organized in the partner country, in cooperation with teachers at the partner universities.
Objectives and Content	<p><b>Objectives:</b> To obtain detailed knowledge on chemical exposure assessment in occupational settings</p> <p><b>Contents:</b></p> <ul style="list-style-type: none"> <li>- Occupational chemical agents</li> <li>- Health effects of chemical exposure</li> <li>- Regulations and limit values</li> <li>- Risk assessment and chemical exposure</li> <li>-</li> <li>- Monitoring, sampling and analysis of chemical agents at the workplace</li> <li>- Field exercises with exposure measurements in the industry</li> <li>- Biomonitoring</li> <li>- Chemical exposure assessment in epidemiological studies</li> <li>- Control measures to reduce chemical exposure</li> </ul>

<b>Learning Outcomes</b>	On completion of the course the student should have the following learning outcomes defined in terms of knowledge, skills, and general competence:		
	<i>Knowledge</i>	<i>Skills</i>	<i>General competence</i>
	<p>The student can:</p> <ul style="list-style-type: none"> <li>- describe main chemical hazards in industrial settings</li> <li>- explain occupational health effects related to airborne chemical exposure</li> <li>- recognize and explain strategies and methods for air sampling and analysis of aerosols, fibres, gases and vapours</li> <li>- describe examples of biomonitoring of chemical exposure</li> <li>- describe control measures to reduce chemical exposure in the industry</li> </ul>	<p>The student can:</p> <ul style="list-style-type: none"> <li>- select and use relevant methods and strategies for sampling of chemical hazards</li> <li>- use the results from exposure assessment in epidemiological studies</li> <li>- use the results from exposure assessment to suggest control measures</li> </ul>	<ul style="list-style-type: none"> <li>- demonstrate a scientific way of thinking and a critical approach to research results</li> <li>- communicate and disseminate knowledge in academic oral presentations and writing</li> </ul>
<b>Required Previous Knowledge</b>	<p>Minimum a master's level of knowledge in occupational health, occupational hygiene, public health, global health or other relevant health related topics, according to the requirements for the PhD programme.</p> <p>Proficiency in English at a level corresponding to TOEFL 550 (paper-based) or 213 (computer-based) or IELTS band 6.0 is expected.</p>		
<b>Access to the Course</b>	Students enrolled in relevant PhD programme at UiB or other partner universities (partners with Centre for International Health, UiB) and medical students in the medical student research programme at UiB (forskerlinja).		
<b>Teaching Methods and Extent of Organized Teaching</b>	<p>The total number of student investment time is 125. The course lasts four weeks and comprises of</p> <ul style="list-style-type: none"> <li>-Lectures online (30 hours)</li> <li>-Group work and group discussions online (20 hours)</li> <li>-Quizzes (2 weekly, in total 4 hours)</li> <li>-Two days of field exercises in the industry one day for preparatory work (8 hours) and one day for exposure measurements (8 hours).</li> </ul> <p>Preparatory theoretical and practical work for the field work, literature review, writing up an industrial process description, preparing instruments/surveys, data collection/exposure measurements, data analysis, evaluation of data (25 hours)</p>		

	-Presentation of results and conclusions for discussion among all students and the occupational and environmental research group (5 hours) An individual assignment based on a relevant topic from an industry (25 hours)
<b>Compulsory Assignments and Attendance</b>	1. Two full-day field exercises (each 8 hours) in an industry, and participation in a group presenting a report showing the results from the field work. The presentation is oral, and all participants must present a part of the work. The report must be 4-6 pages and written for the industry. 2. One individual assignment of about 20 pages addressing a relevant topic in occupational health/hygiene
<b>Forms of Assessment</b>	Report and student presentation of results from the field work (50%) and the individual assignments (50%) Students who receive the grade “F” are allowed to re-sit according to standard procedures at the University of Bergen.
<b>Examination Support Material</b>	
<b>Grading Scale</b>	ECTS credits A-F (F = fail). The presentation of the field work counts 50% and the individual assignment 50%.
<b>Assessment Semester</b>	Spring
<b>Reading List</b>	The reading list will be made available by 1 December on Mitt UiB, the year before the course starts.
<b>Course Evaluation</b>	Students evaluate the teaching by answering a survey about the course after they have submitted their assignment.
<b>Programme Committee</b>	The programme board for the PhD programme (PFU) at the Faculty of Medicine
<b>Course Coordinator</b>	Professor Magne Bråtveit (and professor Bente E. Moen)
<b>Course Administrator</b>	The Faculty of Medicine at the Department of Global Public Health and Primary Care, Centre for International Health has the administrative responsibility for the study programme
<b>Contact Information</b>	Centre for International Health E-mail: <a href="mailto:studie.cih@uib.no">studie.cih@uib.no</a>

## Occupational Exposure to Chemicals (INTH9XXX) – a draft of the schedule

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	3 lectures 1 hour assignment work	3 lectures Quiz 2 hours assignment work	Individual preparatory work – 6 hours 2 hours assignment work	3 lectures 2 hour group work 2 hours assignment work	3 lectures 2 hour group work quiz
2	3 lectures Quiz 2 hours group work	Field work 1: 8 hours Survey -preparation	Individual preparatory work – 6 hours 2 hours assignment work	3 lectures 2 hour group work 2 hours assignment work	3 lectures Quiz 2 hours assignment work
3	1 lecture 3 hours group work quiz 2 hours assignment work	Field work 2: 8 hours Measurements	Individual preparatory work – 6 hours 2 hours assignment work	1 lecture quiz 2 hours group work 2 hours assignment work	2 lectures 2 hours group work 2 hours assignment work
4	2 lectures 2 hours group work quiz 2 hours assignment work	2 lectures 2 hours group work 2 hours assignment work	Individual preparatory work – 7 hours	1 lecture quiz 1 hour group work	Presentations of work 5 hours



Topics for the lectures (which will be interactive and in some of them we will also demonstrate use of instruments/protective equipment)

Global burden of diseases related to chemicals  
Exposure assessments  
Occupational diseases (cancer, respiratory diseases, skin diseases, intoxications)  
Airborne contaminants – definitions  
Aerosols, gases and vapours  
Principles of risk assessment -terminology and legislation  
Occupational exposure limits  
Material Safety Data Sheets and labelling  
Sampling of gases and vapours  
Sampling methods/devices  
Laboratory analysis of solvents  
Calculation of results  
Biomonitoring  
Sampling strategies and methods  
Observations at workplaces  
Principles for preventive measures  
PPE; Aerosol and gas respirators  
Substitution of chemicals  
Industrial ventilation