

様式 A-1  
(FY2025)

2026 年 2 月 6 日

## サイエンス・ダイアログ 実施報告書

1. 学校名：長野県屋代高等学校
2. 講師氏名：Dr. Francis McCallum
3. 講義補助者氏名：なし
4. 実施日時：2026 年 2 月 5 日（木） 13:40 ～ 15:40
5. 参加生徒：2年生 35 人、 年生 人、 年生 人（合計 35 人）  
備考：理数科生徒
6. 講義題目：Photolithography
7. 講義概要：フォトリソグラフィを用いた極小チップ作成
8. 講義形式：  
対面 ・ オンライン（どちらか選択ください。）
  - 1) 講義時間 80 分 質疑応答時間 20 分
  - 2) 講義方法（例：プロジェクター使用による講義、実験・実習の有無など）  
プロジェクター投影による講義
  - 3) 事前学習  
有 ・ 無（どちらか選択ください。）  
使用教材：本校職員（オーストラリア人）による予習プリント・講師からの予習用スライド
9. その他特筆すべき事項：  
・本校生徒のために母国からお土産をご持参いただき、生徒がとても喜んでいました。

Form B-2  
(FY2025)  
Must be typed

Date (日付)  
06/02/2026

**Activity Report -Science Dialogue Program-**  
(サイエンス・ダイアログ 実施報告書)

- Fellow's name (講師氏名): Francis James McCallum (ID No. P25717)

- Name and title of the lecture assistant (講義補助者の職・氏名)

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- Participating school (学校名): Nagano Prefectural Yashiro High School

- Date (実施日時): 05/02/2026

- Lecture title (講義題目):

Block Copolymers for Next Generation Lithography

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- Lecture format (講義形式):

◆  Onsite ・  Online (Please choose one.)(対面 ・ オンライン)((どちらか選択ください。))

◆ Lecture time (講義時間) 90 min (分), Q&A time (質疑応答時間) 30 min (分)

◆ Lecture style (ex.: used projector, conducted experiments)

(講義方法 (例: プロジェクター使用による講義、実験・実習の有無など))

Used projector

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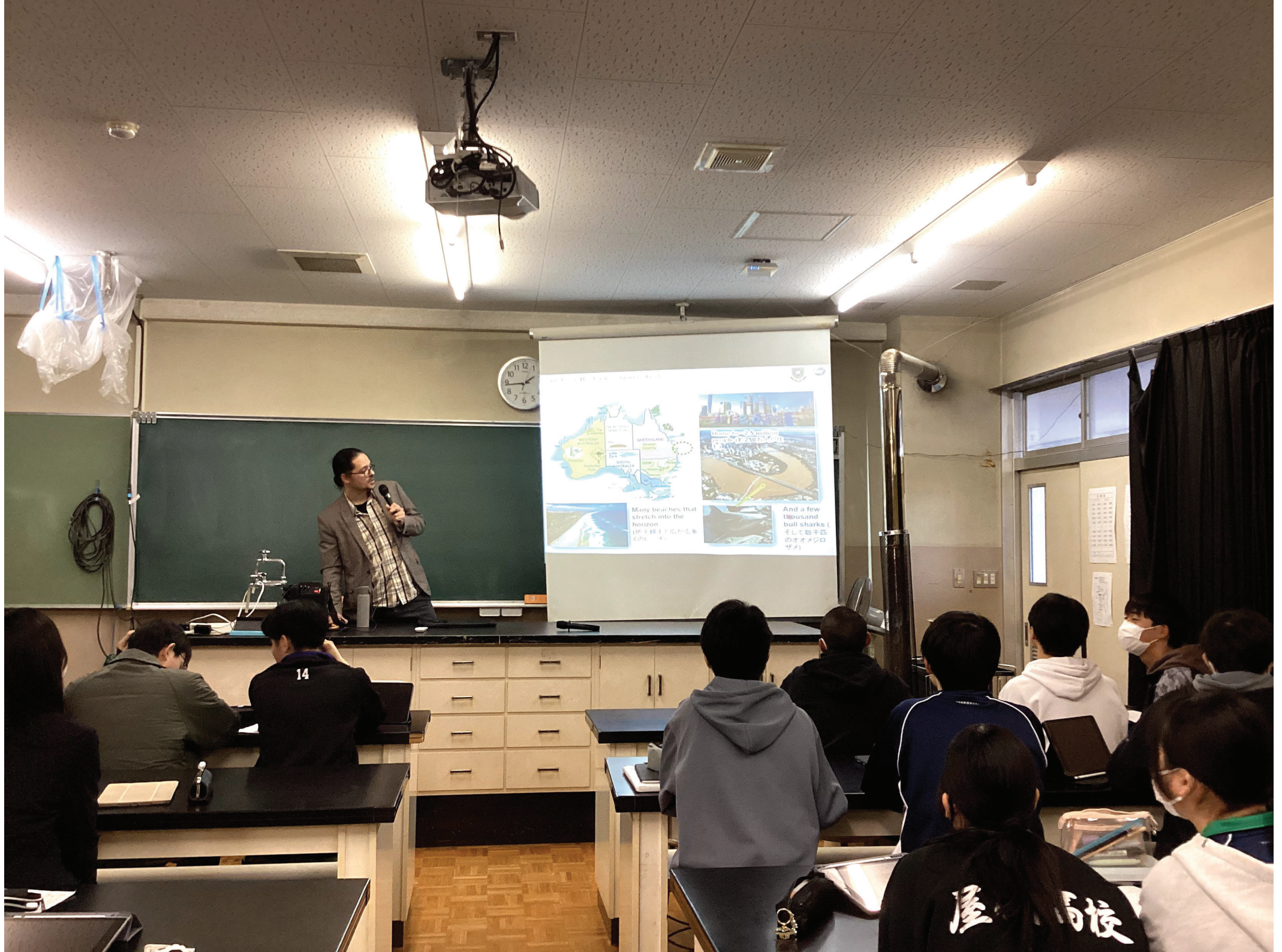
- Lecture summary (講義概要):

The lecture was a great experience for me, and I hope the students gained as much from it as I did, despite some of the more challenging material presented. The presentation included an introduction about myself and where I am from, followed by an overview of how I decided to pursue a Bachelor of Biotechnology majoring in Nanotechnology after high school. I then discussed my Honours and PhD research, my decision to undertake research in Japan, and my current research focus. Between each section, students formed small groups and were given three to five minutes to ask questions about the content. The structure was designed to help untangle the sense of decision paralysis that can accompany choosing a career path after high school. An additional aim was to demonstrate that complex scientific projects can often be addressed using simple underlying principles. I also emphasised that the development of my skills and knowledge in polymer chemistry was gradual, and that the journey included valuable experiences such as travel, collaboration with interesting people, and engaging experiments that students may consider if they choose to follow a similar path.

◆Other noteworthy information (その他特筆すべき事項):

All the teachers were very helpful in assisting me with setting up the presentation, and I am very grateful for their guidance, including directions to and from the school and advice on train schedules. They also provided valuable input on structuring the presentation so that students could ask questions throughout. Although some of the material covered challenging concepts, the students were clearly engaged and asked excellent questions. It is not often that I have the opportunity to present my work to an audience outside my field, and it was a rewarding experience, not only because I was able to observe life in a Japanese high school, but also because it allowed me to reflect on and engage with my own research from a different perspective.

- Impressions and comments from the lecture assistant (講義補助者の方から、本プログラムに対する意見・感想等がありましたら、お願いいたします。):



World's Best Beaches Report 2017



More than 25 million people (250万) visit the beach every year (年間).

Many beaches that stretch into the horizon (伊豆半島の海岸線が名産「伊豆」).

And a few thousand bull sharks (そして数千匹のオオメジロザメ)

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屋高校