

How profitable is a Black Soldier Fly biorefinery? Techno-economic evaluation of multi-product biorefinery process based on Black Soldier Fly larvae

MEng (Chemical Engineering) (Research) (Read more [here](#) about the programme and admission requirements.)

Supervisors: [Prof Neill Goosen](#) & [Dr Mieke Nieder-Heitmann](#)

Commencement of studies: January 2025

Bursary: Bursary funding is busy being secured for this position; candidates who obtain their own bursary are particularly encouraged to apply.

An opportunity is available for postgraduate research at master's level, in determining the profitability of a multi-product biorefinery based on Black Soldier Fly (BSF) larvae. Insect production is growing globally, and the products that can be produced from this raw material are expanding. Currently, the majority of BSF products end up in pet food and animal feed applications, but processing options are becoming available to produce products suitable for human consumption. The profitability of these processing options (or permutations of them), however, is still unknown and needs to be determined to drive the sector towards commercialisation. The project will determine the profitability of producing a high-quality protein product for human consumption, with insect chitin and oil as co-products, using a simulation approach.

The research falls within the [Bioresource Engineering group](#) of the Department of Chemical Engineering. This group is closely aligned with and supported by industrial collaborations. Prof Goosen has led multiple projects on protein extraction and processing from a variety of raw materials, and Dr Nieder-Heitmann worked in the BSF industry and brings in-depth industry experience. If you want to form part of this exciting opportunity to be at the forefront of an emerging industry, make sure to apply for the 2025 postgraduate intake.

Requirements

- A bachelor's degree (BEng, BScEng, HonsBScEng or similar) in Chemical Engineering from an accredited tertiary institution. *Applicants with BTech, National Diploma, advanced diploma, MTech, MEng or MSc qualifications will not be considered for this position.*
- Applicants must have a good academic record (preferably with a course aggregate of >65%).
- Previous experience in AspenPlus software will be a definite advantage.
- Preference will be given to South African citizens and permanent residents who display academic excellence.

Application

Interested candidates must send a cover letter, CV, degree certificate(s), complete academic transcript(s), and contact details of at least three academic references to njgoosen@sun.ac.za. Incomplete applications will not be considered. Candidates may consider their application unsuccessful if they do not receive any feedback within four weeks of applying.

Further to submitting the application documents to Prof Goosen, candidates must also complete and submit an institutional application. Please read more about the application process [here](#).

Stellenbosch University reserves the right not to fill the position.